A Clinical Lecture

ON A

CASE OF PERNICIOUS ANAEMIA HAVING CHANGES IN THE SPINAL CORD.

DELIVERED AT GUY'S HOSPITAL.

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GENTLEMEN,—Most of you will remember the woman about whom I want to talk to-day. She was in Mary Ward in September. She was 31 years of age, and a nurse. She was said to have always been delicate; the history given was that she had been out of health for two years, during which she had been getting weaker, losing weight, had had much anorexia, totally disliked her food, and had become paler. There were no definite symptoms indicating disease of any particular organ. Her illness might be summed up by saying that she had become thinner, paler, and weaker, and had suffered from considerable dyspnoea. She was sent in with the diagnosis of anorexia nervosa. So the first thing we did at the bedside was to try to make it clear to those who were round with us what was meant by anorexia nervosa. It is a condition which was described by Sir William Gull about fifty years ago. Most of the patients are women; they have a great dislike for food; are always of a nervous, neurotic disposition; take less and less food; waste more and more, although they have no organic disease; and ultimately they are reduced to an extraordinarily light weight. I have known one patient weigh less than 5 st. If such a patient undergoes what is called a complete Weir Mitchell course—that is to say, if she is put to bed, rested completely, isolated absolutely from her friends, has massage applied every day, is systematically fed every two hours, so that at the end of a few days she is taking a great excess of food; I have seen a woman only 5ft. 4 in. high taking over 5,000 calories a day, which gave a heat value for her food per kilogram of body weight of 115 kilo-calories — she generally quickly recovers, loses her distaste for food; even if she was sick before the treatment began, she keeps her food down, and ultimately, though a few such patients are never quite cured, most are cured or immensely improved. You do not see this treatment in the hospital, partly because it is expensive and partly because it is difficult to carry out, as these patients have to be isolated in a room by themselves and must have a special nurse and masseuse. The most essential feature of the cure is the absolute isolation of the patient from her friends, which isolation even extends to not allowing the receipt or sending of letters. The metabolism of these patients is of great interest. One, whom Dr. E. I. Spriggs and I examined,[1] utilized 96.5 per cent. of the fat in her food even when 2,692 kilo-calories of fat were taken daily. The total amount of nitrogen in her food for fifty-five days was 2,142.54 grams; of this, 1,481.5 grams were recovered from the urine and faeces, leaving 661.04 grams stored in the body or got rid of in some other way. Her increase of weight in fifty-five days was 13,256 grams; and if the gain in weight had been entirely protoid, it would have accounted for 442 grams of nitrogen, so that even on this assumption there was a deficit of 219 grams of nitrogen. Allowing for menstruation and sweat, this might at the lowest be reduced to 120 grams. The explanation of this deficit is difficult, but it might be due to the tissues containing simpler nitrogenous substances and to the water in the tissues having been reduced during observation.

The patient about whom we are talking was, as I have told you, sent in as a case of anorexia nervosa. The first thing you have to remember when the suggestion of anorexia nervosa is made is that it is a grave mistake to say that a person is suffering from anorexia nervosa when she is not. Indeed, you should never make a diagnosis of anorexia nervosa at one examination only, because the organic diseases which cause people to waste and become weaker and paler are such serious diseases, that to put a person suffering from one of them into a nursing home and isolate her from her friends is as bad a thing as you could do. Moreover, you tell the friends of the patient who suffers from anorexia nervosa that she will get well, but people suffering from most of the diseases which may be confused with it will not get well. An obvious one is phthisis. A person with phthisis becomes weaker, loses appetite and flesh, and becomes pale. In every case in which you suspect anorexia nervosa, carefully examine the patient to see if she has phthisis. We concluded that the woman who forms the subject of this lecture had not phthisis. The next thing to remember is that cancer will make you lose flesh, it will make you weaker, it will make you paler, and make you lose appetite; therefore, whenever you suspect anorexia nervosa, look everywhere to find whether the patient has malignant disease. This woman had none. Some cases of granular kidney have the group of symptoms which I have just mentioned. We examined this patient's urine, and it was healthy; we took her blood pressure, and it was below normal; there was no evidence that she had granular kidneys. People suffering from a gastric or duodenal ulcer may lose their appetite, get weaker, thinner, and paler. We examined this patient carefully, but we could find no evidence that she had a gastric or duodenal ulcer. We could not make out that she had diabetes, which would have made her weaker and paler and thinner, although of course she probably would have had a large appetite. We could not find anything wrong in her heart, lungs, abdomen, or kidneys. Up to this stage it looked as if the doctor who suggested that she had anorexia nervosa was right.

But we went on with our examination and came to the nervous symptoms, and those of you who were round the bedside with me the other day will remember that, beginning with the feet, we, so to speak, "struck oil" at once, for we discovered she had an extensor reflex in her great toes. That seems to those of you who are beginning medicine a very trivial matter, but it is of fundamental importance. Most textbooks tell you that an adult who has extensor reflex of the great toe must necessarily have organic disease of the nervous system. I think I have once in my life seen a case in which there was no organic disease, and in which that sign occurred, but that is so rare that for all practical purposes the statement in the books is correct, namely, that if there is an extensor reflex of the great toe, the possessor of that reflex, if an adult, has organic disease of the nervous system. You will remember that to obtain it the sole of the foot should be warm, and that you should stroke the sole lightly with some sharp object from behind forwards, and generally steady the foot so as not to mistake a flexion of the ankle for a flexion of the toe. If you do this to a healthy person the toe is generally flexed towards the sole of the foot. If it is extended, there is disease of the central nervous system. In children up to the age of about 3 it is always extended, whether they are healthy or diseased, so that the reaction is of no use in children. Further, the disease of the nervous system indicated by an extensor reflex of the great toe is always some alteration in the upper motor neuron. So that the moment we found that this woman had an extensor reflex in her great toe we were compelled to assume that she had organic disease of the nervous system, although she made no complaint of anything to point to organic disease of that system, nor could we find anything else, on examining her further, to indicate any organic disease of her nervous system. Having settled definitely that she had organic disease of the nervous system, somebody then handed to us the temperature chart, and it was seen that during the two days that she had been in the hospital her temperature was about 101°.

The problem before us was this: here is a woman who is wasted, weak, has anorexia, is pale, has almost certainly chronic degeneration of her upper motor neuron, and has a raised temperature. What can be the matter with her? You will remember that she came in because of her general weakness, and pallor and anaemia. Therefore the suggestion was now made that this woman really had pernicious anaemia, and that the changes in the spinal cord which gave the extensor jerk in the great toes were secondary to pernicious anaemia. And further, it was alleged by those who took this view that it would explain the rise of temperature; consequently the diagnosis suggested was that the patient had pernicious anaemia.

Inasmuch as when we mentioned anorexia nervosa I sought to explain what it was, so now I must stop to explain what is meant by pernicious anaemia. You may say that any anaemia which is profound enough to kill is pernicious. That, in a sense, is true. The term "pernicious anaemia" is bad, and yet it is used so constantly for one particular disease only that we know what we mean when we employ it. This trouble was first described by Addison, and if you read his work on the suprarenal capsules you will find that while discovering Addison's disease he stumbled across people who were anaemic and weak, and in whom no obvious cause for anaemia could be found. These patients were frequently of a lemon tint, they were sometimes, but not by any means always, a little wasted, and he stated that the disease which these people were suffering from was uniformly fatal in the end, and that when a *post-mortem* examination was made nothing could be found wrong. Addison's description has passed into the classics of medicine and has needed no alteration, and this apparently causeless anaemia first described by him is called pernicious anaemia. It would be very much better if it were called Addison's anaemia. We have made little or no advance in the clinical symptoms since Addison described them. We have learnt something owing to examination of the blood and to more thorough *post-mortem* examinations than were possible in his day, and the chief change in the blood is this: there is a great reduction in the number of red cells, and there is a great reduction in the haemoglobin—in other words, there is a profound anaemia, but the reduction in the haemoglobin is usually not as great as the reduction in the number of red cells; therefore each cell carries an excess of haemoglobin. In other words, the colour index is above unity. Other changes in the blood are that many of the red cells are misshapen, there is much poikilocytosis, there are many megaloblasts, and very often several nucleated reds, and generally there is considerable deficiency of white cells. You will remember that although the woman I am describing to you was anaemic and weak she had not a yellow colour, which Addison described as usually characteristic of his cases. So we could not say, from merely looking at her, that she had pernicious anaemia. But I need hardly say we examined her blood immediately the suggestion of pernicious anaemia was made. There were two examinations; she did not live long enough for more. The first gave the colour index as 1.7, the reds being reduced to 1,750,000, the haemoglobin 45 per cent. Later examination showed almost the same, the colour index being then 1.9, and the white cells were greatly reduced. Thus you see there was a great reduction of red cells, a great reduction of white, and a raised colour index, and therefore the diagnosis of pernicious anaemia was made. She had some poikilocytosis, she had some megaloblasts and one or two nucleated reds, and so the diagnosis was confirmed, and we knew that she had pernicious anaemia and not anorexia nervosa, although she had anorexia. Still she certainly did look like a case of anorexia nervosa; she was the usual sex, the usual age, she had anorexia, and was wasted. Further, most cases of pernicious anaemia are not wasted, and most are primrose yellow in colour. Occasionally in addition to the lemon-yellow colour of the skin you see scattered over it little dark brown patches of pigment. Whenever you see them, inquire whether the patient has been taking arsenic, as is likely, because arsenic, as I shall tell you presently, is the best drug you can give a patient with pernicious anaemia, and arsenic causes brown pigmentation of the skin; but brown pigmentation due to pernicious anaemia, it is definitely settled now, may occur inside the mouth, like the pigmentation of Addison's disease,[2] so that it becomes a considerable clinical difficulty at times without a blood examination to know whether you are dealing with a patient who has pernicious anaemia, with one who has been taking arsenic, or with one who has Addison's disease. An examination of the blood will put that right for you. I cannot now give you a lecture on pernicious anaemia, it would take too much time; but I may remind you that sufferers from it have most of the signs usually associated with profound anaemia—that is to say, they are giddy, they have a feeble beat of the heart, they have haemic murmurs, the heart may be dilated, they are short of breath, and in women you find amenorrhoea. This woman had most of these symptoms. Let me remind you that occasionally you see haemorrhages in the retina sometimes associated with retinitis and optic neuritis; so severe were these features in an anaemic patient in the hospital two years ago, that from the ophthalmic appearances we successfully suggested pernicious anaemia. Our patient had no changes in the fundus of her eyes; if she had we should have known that she was not suffering from anorexia nervosa. She went from bad to worse, and at the end of two days she died.

I am often saying to you in the wards that if we put aside a few functional diseases—such, for instance, as genuine neuralgia—you can never be said to make a diagnosis unless you have a definite picture of what will be found at a *post-mortem* examination. Whenever you see a patient in the ward or anywhere else, by the time you have left the bedside you ought to be able to describe what you would expect to see if the patient were at that moment shot and you made a *post-mortem* examination. You must picture to yourself the naked-eye and histological appearance of the liver, the heart, the lungs, and the other viscera; and, further, you must have in your mind, as far as present knowledge will allow, a rational explanation of the patient's symptoms. Unless you have that, you have not made a diagnosis. We must now try to form such a picture and explanation for our patient who lay in No. 5 bed in Mary Ward. We diagnosed that she had pernicious anaemia, and that she also had chronic degeneration of her upper motor neuron. In pernicious anaemia we picture to ourselves an excessive destruction of blood, great haemolysis, and we believe that to be the essential feature of the disease. The reason why we believe this is that if you make a *post-mortem* examination on a case of pernicious anaemia and take a piece of the liver, and let it lie in a 5 per cent. solution of potassium ferrocyanide for five minutes, and then transfer it into a 1 per cent. solution of hydrochloric acid, it turns blue, as this piece of liver, from a patient with pernicious anaemia, which I show you has done. On applying this test to the liver of our patient it also turned bright blue. The explanation is that in pernicious anaemia there is a great deposit of free iron in the liver, and the potassium ferrocyanide and hydrochloric acid and free iron give you Prussian blue, and consequently from the bright blue colour we infer the presence of a good deal of free iron in the liver, and we know that this is characteristic of pernicious anaemia; therefore, as we said during life that the patient had pernicious anaemia, we pictured to ourselves that the morbid anatomist would be able to demonstrate this blue colour. He did, and thereby clinched the diagnosis. The appearance of free iron in the liver means that there had been a great destruction of blood, and the resulting free iron has been deposited in the liver, and you might demonstrate it there in any condition in which there is considerable haemolysis, but the appearance of this free iron in the liver is much more constant and much more abundant in pernicious anaemia than in any other disease, although you sometimes see a less degree of it in other diseases accompanied by severe destruction of the blood. I have seen it in severe pyaemia. When there is a considerable amount of free iron in the liver a little is deposited in the kidney and a little in the spleen. At the *post-mortem* examination on this woman it was possible to demonstrate free iron in the liver, kidneys, and spleen. Much of the work concerning free iron in the viscera has been done at Guy's Hospital. Dr. F. G. Hopkins,[3] working at some cases under my care, published a very important paper on the subject. The normal liver should contain 0.09 per cent. of free iron, but he found in four sufferers from pernicious anaemia the amount of free iron was 1.038, 0.204, 0.400, and 0.190 per cent. The spleen in health ought to contain 0.18 per cent. of free iron, but he found the amount in 2 cases of pernicious anaemia to be 0.301 and 0.325 per cent. Mr. J. H. Ryffel[4] has recently published the results of 7 cases. The amounts of free iron in the liver were 0.34, 0.24, 1.01, 0.14, 0 57, 0.60, and 0 086 per cent., showing an excess in 6 out of 7 cases, and the increase in the spleen and kidneys was equally striking. So that analyses show that in pernicious anaemia there is a great deposition of free iron in the liver, kidneys, spleen, and especially in the liver. It is found almost entirely in the periphery of the lobules of the liver, and in the convoluted tubules of the kidney.

The intensity of the Prussian blue reaction is by no means necessarily proportionate to the amount of free iron, but this is proportionate to rapid haemolysis and a high colour index. As so much free iron is found in the liver, I suggest that the destruction of red cells and haemoglobin takes place somewhere in the portal area, and the free iron is consequently deposited chiefly in the liver. This patient only had 45 per cent. haemoglobin, and her red cells were reduced to a little over a million. Therefore, each red cell had more haemoglobin than it should. In other words the colour index was high, and this high colour index, which is such a constant feature of pernicious anaemia, may be regarded as an attempt at cure, each red cell carrying more haemoglobin than it should to compensate for the paucity of red cells.

You will remember we took out the femur of this woman, and the marrow was red like fetal marrow, and evidently it was in a state of great activity. The suggestion is that this indicates an attempt at repair, that the marrow of the bones becomes unduly active and red, like fetal marrow, because it is called upon to make an excess of red cells to compensate for their abnormal destruction, and that in its hurry to cure the disease, it is constantly pouring into the blood immature forms of red cells, such as megaloblasts, poikilocytes, nucleated reds, and red cells staining badly, which give blood films so characteristic of pernicious anaemia. When the marrow is in this condition, the bones are sometimes tender during life; they were so in our patient.

Fig. 1.

I have already told you that our patient had a moderate degree of pyrexia. It is strange that the temperature should be raised, as it usually is in pernicious anaemia, because the sufferers from it are generally not wasted, and, the red cells being greatly reduced in number, the oxygen-carrying power of the blood is diminished, and, generally speaking, a raised temperature means more active oxidation. We may suppose that, as a result of the breaking down of the blood, there is some substance formed which, acting like belladonna, sends the temperature up by its action on the nervous system.

I have left till last the chief interest of our patient—namely, the state of the spinal cord. You will remember that she had an extensor reflex in both great toes, and from this we diagnosed there was degeneration of the lateral columns of the cord. Degeneration of the spinal cord occurs in various forms of severe anaemia—more often in pernicious anaemia than others—but not in many cases of pernicious anaemia; it is probably due to some toxin; it may be that which produces the haemolysis, or it may be one of the results of the haemolysis. Poisons will produce degenerations of the spinal cord, for we meet with them as a result of poisoning with ergot of rye. I hand round some beautiful sections of the cord from our patient. They have been stained by the Weigert-Pal method. The healthy parts are stained very dark; the degenerated parts are unstained, and hence appear light (see Figs. 1, 2, and 3). You will notice that the degeneration is much more extensive in the dorsal than in the cervical region, and that it is the posterior columns and crossed pyramidal or lateral tracts that are most degenerate; indeed, in one of our sections there are hardly any healthy fibres left in these regions. The degeneration in the lateral tracts was the cause of the extensor jerk in both great toes. We found during life no other evidence—for example, exaggerated knee-jerks—of degeneration of the lateral columns, and none of degeneration of the posterior columns. Our patient was moribund when we examined her, and this, no doubt, explains to some extent the absence of many symptoms of degeneration of the cord; nevertheless, the degeneration of the cord—if it exists—in a case of pernicious anaemia is usually much more extensive than the symptoms observed during life would lead you to expect. If you look carefully, you will notice some areas of degeneration outside and near to the lateral tracts and some on the edge of the cord in the cervical region. You will also see in the section of the dorsal region that the white matter adjacent to the posterior horns (posterior root zone) is not degenerate. Lissauer's tract, too, has escaped. Further, a low power of the microscope will show you small diffuse areas of degeneration and several minute haemorrhages. I doubt whether you will ever see better examples of severe changes in the spinal cord in pernicious anaemia than are shown in the slides before you. In all respects they show the usual changes found in an extreme case, but lesser degrees of degeneration are more common, and these are generally seen only in the posterior columns. The grey matter is not affected. All these changes in the cord are rare in the higher cervical and the lower dorsal and lumbar regions, and once again let me remind you that any changes in the spinal cord are uncommon in pernicious anaemia—hence this lecture.

Fig. 2.

Fig. 3.

If I may sum up the chief points of interest in this case: in the first place, it teaches us that you should be very careful about the diagnosis of anorexia nervosa. If we had not discovered that extensor reflex in the toes we might never, in the two days that that woman was in the hospital, have examined the blood and found that she had pernicious anaemia, and we should have had the mortification of a case of supposed anorexia nervosa going down to the *post-mortem* room and found to be pernicious anaemia. We should not have forgiven ourselves for that. And in the next place, it does most admirably illustrate the advantage of taking special notice of small points. It would seem incredible—mere hocus-pocus—to any of the laity to believe that, because this woman instead of bending her toe downwards bent it upwards, we should be able to infer she had pernicious anaemia and sclerosis of the upper motor neuron, and would certainly die.

All I have to tell you about treatment is that sufferers from pernicious anaemia often improve if they take arsenic. But the improvement is never permanent. The usual thing is that the patient comes into the hospital, is given arsenic, the blood improves, and the patient feels better, and then, after some weeks' treatment, goes out of hospital, but is admitted again in a few months, and again improves on

arsenic. That happens three or four times, and then the disease proves fatal.

REFERENCES.
[1] *Journal of Physiology*, vol. xxvi, p. 151. [2] *Quarterly Journal of Medicine*, vol. i, p. 108, and *Guy's Hospital Reports*, vol. lxiii, p. 103. [3] *Guy's Hospital Reports*, vol. i, p. 349. [4] *Journal of Pathology and Bacteriology*, vol. xiv, No. 3, p. 411.

REMARKS ON A CASE OF SUBACUTE COMBINED DEGENERATION OF THE SPINAL CORD, SIMULATING DISSEMINATED SCLEROSIS,

WITH THE RAPID DEVELOPMENT OF PERNICIOUS ANAEMIA SHORTLY BEFORE DEATH.

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It is well known that the nervous symptoms due to subacute combined degeneration of the spinal cord may be developed a considerable time before the anaemia or cachexia which usually precedes or accompanies the symptoms due to the degenerative changes in the spinal cord. In cases of this kind the diagnosis is sometimes very difficult, more especially in the early stages of the case; disseminated sclerosis in particular may be very closely simulated. In the following case, in which the nervous symptoms were developed three years before the anaemia became sufficiently marked to attract attention, this difficulty in diagnosis was more striking than in any of the recorded cases of subacute combined degeneration with which I am acquainted. This was partly due to the early age (31) at which the cord symptoms developed, but chiefly to the facts: (1) That, in addition to ataxic-spastic paraplegia, nystagmus and derangements of the bladder and rectum, optic atrophy, exactly resembling that characteristic of disseminated sclerosis, was present; and (2) that remarkable periods of improvement and relapse, so characteristic of disseminated sclerosis, occurred. The case is also important and exceptional inasmuch as the profound anaemia which developed a fortnight before death was typical pernicious anaemia, megalocytes were present in the blood during life, and the free iron reaction was very marked in the liver and kidneys after death. The notes of the case are as follows:

A man, aged 33, married, a hairdresser by trade, was admitted to the Edinburgh Royal Infirmary on September 18th, 1906, complaining of difficulty in walking and a tight feeling across the stomach.

History.

The patient, who denied any venereal disease, stated that he enjoyed good health until October, 1904, when he had an attack of influenza. After this he noticed that his legs were weak, and that his sight was becoming impaired; he however continued to work without much complaint until January of the present year (1906); he then had another attack of influenza. After this his legs were for a time much weaker, and he complained of a feeling of numbness, tingling, and pins and needles in the legs, buttocks, and lower part of the back. Since this second attack of influenza his sight has become much worse. He continued to follow his occupation until three weeks ago, when his walking became very unsteady, and he noticed that in walking he dragged his legs. Two months ago he felt giddy when getting up in the morning or when he turned quickly. For the past five or six weeks he has felt a tight feeling across the upper part of the abdomen, and his water has at times dribbled away. Since January he has been obstinately constipated. He has had no pain in the back and no lightning pains. There has been no affection of speech. During the past year he has become much "shorter in the temper." His social condition was quite satisfactory, and he had been a very steady man.

Family History.

Father, aged 53, is alive and well; mother died a year ago, at the age of 52, cause unknown. There were twelve children in the family: all died in childhood (causes of deaths not known) except one brother, who is abroad, and, as far as the patient knows, healthy. The patient has had six children; two died, at the ages of 14 months and 2½ years respectively, from inflammation of the brain (? meningitis); the four surviving children are alive and well. There have been no miscarriages.

Condition on Admission.

The patient was a spare, thin man. The body was fairly well clothed with fat; muscularity was poor. His height was 5 ft. 3¾ in., and his weight 7 st. 1½ lb.; when in perfect health he used to weigh 8 st. 8 lb. in his clothes. The temperature was 97.6°, the pulse 74, and the respirations 20 per minute.

The mucous membranes were slightly anaemic. (I have no record of any blood examination at this date.) The appetite was poor; the tongue was rather red and raw; the bowels were obstinately constipated.

The patient walked with great difficulty and only with support. The gait was very ataxic and also spastic, the toes being dragged along the ground. There was marked Rombergism. The muscularity was poor, but there was no localized muscular wasting, and no definite paralysis of any muscle or group of muscles; the calves though small in size were firm. The knee-jerks and Achilles jerks were greatly exaggerated. There was no sustained ankle clonus, but a few clonic contractions were obtained in the right leg. The plantar reflex showed a double extensor response, more marked on the right side. The abdominal reflex was active on both sides. The deep reflexes in the upper extremities were normal. He complained of a feeling of numbness and tingling and coldness in the lower extremities, buttocks and lower part of the back, but no objective derangements of touch, pain, or heat and cold were detected. The sense of movement (muscular sense) in the lower extremities was distinctly impaired. The bowels were obstinately constipated: the functions of the bladder were distinctly affected (precipitant urination and some dribbling, but no loss of expulsive power). There was no lateral nystagmus, but distinct nystagmus on looking up, and especially on looking upwards and to the left. The pupils were equal, 4 mm. in diameter; they contracted actively to light and on convergence. The acuity of vision was much impaired—$\frac{6}{18}$ in each eye. There was distinct pallor of both optic discs, chiefly marked on the temporal sides, and greater in the right than in the left eye. There was no volitional tremor; no speech affection; and (at this stage) no pain in the back.

A soft systolic murmur was present in the aortic area, the aortic second sound was somewhat accentuated, but the heart, kidneys and other viscera appeared to be normal.

Diagnosis.

The condition was one of ataxic-spastic paraplegia. It was obvious that the patient was not suffering from tabes. The age at which the disease had developed, the absence of other cases in the family, the absence of foot deformity, and the presence of optic atrophy were against Friedreich's ataxia. The ataxic-spastic paraplegia, the nystagmus, the giddiness, the optic atrophy, the affection of the bladder and rectum, were indicative of disseminated sclerosis. The fact that the illness had commenced at the age of 31 in a perfectly healthy man who had not had syphilis, after an attack of influenza, seemed to support this diagnosis. The subsequent progress of the case—the marked improvement which resulted under treatment on two occasions (see infra)—was strongly in favour of this diagnosis. Granting, as was thought, that the patient was suffering from disseminated sclerosis, the peculiar character of the nystagmus (it was only present on looking up) was exceptional and interesting.

Treatment and Subsequent Course.

The patient was treated with rest in bed, massage and arsenic (5 minims of Fowler's solution three times daily). Rapid improvement took place; the patient's walking quickly improved; the bladder derangement disappeared. He was discharged from hospital on November 3rd, 1906, walking well and stating that he felt quite fit for work. The exaggeration of the deep reflexes, the double Babinski, the optic atrophy and the nystagmus were still present. For two months after his discharge from hospital the patient felt very well and was able to walk about and to do his work, which involved a lot of standing; weakness in the legs and difficulty in walking then again developed.

He was readmitted to the infirmary on February 20th, 1907. The ataxic-spastic paraplegia was very marked and he could only walk with support. The urinary difficulties had returned, and he now had to "force" in order to get the water away. He complained of an aching pain on the left side of the back, of numbness, prickling, and coldness in the legs, and of a sensation as if he were walking on rubber. The knee-jerks and Achilles jerks were markedly exaggerated; ankle clonus was now present in both legs; there was a marked double extensor response; the abdominal reflexes were still very active on both sides. The vertical nystagmus and the pallor of the optic discs were more marked. Dr. Sym kindly examined the eyes and reported as follows:

"The acuity of vision in right eye is $\frac{6}{12}$, and in left eye $\frac{6}{24}$. The optic discs are distinctly paler than normal, especially on their outer sides. The retinal vessels are slightly reduced in size."

The patient was again treated with arsenic and again improved. On May 8th he was discharged, able to walk well with the help of one stick and saying that he was fit for work.

For three months after his discharge he continued well and was able to follow his occupation. Then the weakness in the legs and difficulty in walking again recurred, and he began to suffer from pain in the back.

On October 15th, 1907, he was admitted to the infirmary for the third time, unable to walk without support; the gait was still very ataxic and spastic; Rombergism was marked. The patient complained of severe pain in the lower part of the back and in the legs, numbness and tingling in the feet, and a cold feeling in the knees and elbows.

The knee-jerks and Achilles jerks were still markedly exaggerated; ankle clonus and an extensor response were present on both sides. There was considerable difficulty in

making water; the bowels were still obstinately constipated. The vertical nystagmus and optic atrophy were still present. There was no volitional tremor and no speech affection.

He was treated by rest in bed, arsenic, and phenacetin (for the pain in the back and legs). For the first fortnight after readmission he distinctly improved, but on October 28th he complained of a discharge from the nose, and was sent to the throat department. Dr. Logan Turner, who kindly examined him, reported, "he has some obstruction and nasal discharge." He advised an alkaline nose wash.

On November 11th a blood count showed: Red corpuscles, 4,200,000; haemoglobin, 70 per cent.; colour index, 0.8; whites, 8,000.

After this date the patient rapidly became profoundly anaemic, the blood picture being typically characteristic of pernicious anaemia. The legs became completely paralysed, the muscles soft and atrophied; the knee-jerks, Achilles jerks, and the ankle clonus disappeared; the Babinski sign remained; the legs and lower part of the trunk and abdomen became anaesthetic, and incontinence of the bladder and rectum developed; he became semi-comatose and finally comatose.

On November 19th the blood count was as follows: Red corpuscles, 1,500,000; haemoglobin, 28 per cent.; colour index, 0.9. On microscopic examination the red corpuscles were found to be markedly altered in size and shape; some normoblasts and megaloblasts were present. The feet and legs were oedematous, and the temperature, which had throughout the previous course of the case been normal or subnormal, began to rise, and showed marked fluctuations; the highest point reached was on November 23rd, when the morning temperature was 101.8.

On November 25th the red corpuscles numbered 600,000 per cubic millimetre, and the haemoglobin was 28 per cent., the colour index = 2.3. On November 26th the patient became unconscious.

He died on November 27th.

The blood count at different dates was as follows:

Date.	Number of Red Corpuscles.	Percentage of Haemoglobin.	Colour Index.
November 11th, 1907...	4,200,000	70	0.8
November 15th, 1907...	1,500,000	28	0.9
November 21st, 1907...	1,190,000	25	1.0
November 23rd, 1907...	980,000	25	1.3
November 25th, 1907...	600,000	28	2.3

Post-mortem Examination.

This was made on November 28th, 1907. There was extreme pallor of the skin and mucous membranes; the muscularity was poor, the subcutaneous fat scanty; the feet and ankles were slightly oedematous.

The appearances were typical of progressive anaemia: Marked fatty degeneration of the myocardium, liver, and kidneys; very marked iron reaction in the liver and kidneys; typical red appearance of the bone marrow. There were no punctiform haemorrhages. The spleen was firm and somewhat enlarged.

There was slight atheroma at the root of the aorta. The upper lobes of the lungs were somewhat emphysematous, the lower lobes oedematous and congested. There were no gross changes in th stomach, intestine, pancreas, suprarenals, or thymus.

The brain was markedly anaemic, but showed no gross lesions.

Fig. 1.—Section through the cervical enlargement of the spinal cord in the case of subacute combined degeneration described in the text. (Stained by Weigert-Pal.)

Spinal Cord.

After hardening, the spinal cord was cut and stained in various ways. The membranes and nerve roots, posterior and anterior, were healthy.

Degenerative changes, typical and characteristic of subacute combined degeneration, were found in the spinal cord (see Figs. 1, 2, 3, and 4).

These changes were most marked in the mid-dorsal region, and diminished as one proceeded upwards and downwards to the top and bottom of the cord.

In the mid-dorsal region there was extensive degeneration of the posterior columns, the crossed pyramidal tracts, the direct cerebellar tracts, and the direct pyramidal tracts. In the lateral columns, more especially on the right side, the degeneration extended much further forward than the direct cerebellar tract. In the anterior column, too, the degeneration invaded a much more extensive area than the direct pyramidal tracts. In the posterior columns in the mid-dorsal region a large area of normal fibres was present on the inner side of the grey matter and posterior horns. Lissauer's tracts were not involved.

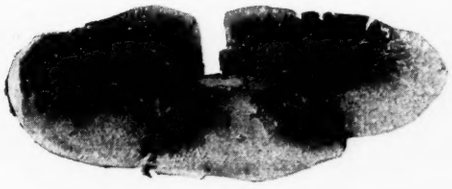

Fig. 2.—Section through the mid-dorsal region of the spinal cord in the case of subacute combined degeneration described in the text. (Stained by Weigert-Pal.)

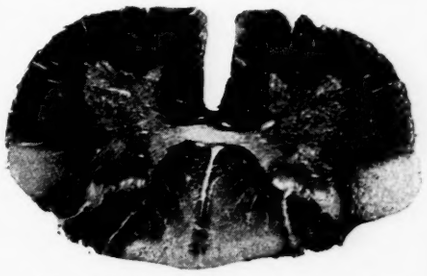

Fig. 3.—Section through the lower dorsal region of the spinal cord in the case of subacute combined degeneration described in the text. (Stained by Weigert-Pal.)

Fig. 4.—Section through the lumbar enlargement of the spinal cord in the case of subacute combined degeneration described in the text. (Stained by Weigert-Pal.)

In the cervical enlargement the lesion in the posterior columns was confined to the columns of Goll (postero-internal columns) and to a narrow tract of the postero-external columns (column of Burdach) on the surface of the cord. In the lateral columns the direct cerebellar tracts were completely sclerosed, and the crossed pyramidal tracts to some extent sclerosed; on the right side the sclerosis extended farther forward than the direct cerebellar tracts (as it did in the mid-dorsal region). In the anterior columns the sclerosis involved the direct pyramidal tracts more extensively on the left than on the right side.

In the lumbar enlargement the posterior columns were sclerosed in a patchy manner, the involvement of this part of the cord being much less extensive than in the mid-dorsal region. The crossed pyramidal tracts at this level (greatest thickness of the lumbar enlargement) were also involved.

Many of the nerve cells in the anterior horn in the dorsal, lumbar, and cervical regions, and the cells in Clark's column, were degenerated, as shown by Nissl's method.

This case presents many points of great interest; the more important are the following:—

1. ***The fact that the optic atrophy and cord symptoms developed three years before the pernicious anaemia became sufficiently marked to attract attention.*** **It is true that when the patient first came under observation the mucous membranes were slightly anaemic, but the anaemia was so slight that no blood examination was made; the anaemia only attracted attention and became a feature of the case a few weeks before death. The obvious lesson which this teaches is that a careful blood examination should be made in all cases of (supposed)**

disseminated sclerosis and in all cases of ataxic and ataxic-spastic paraplegia. The facts of this case, in my opinion, strongly support the view that in cases of subacute degeneration the cord lesions are not directly due to the anaemia or to haemorrhages in the spinal cord the result of the anaemia (it has been stated that no punctiform haemorrhages were present in this case in any of the organs), but that the degenerative lesions in the spinal cord and the anaemia, which in this case was typically pernicious anaemia, are due to a common cause—a toxin, the exact nature of which we are still ignorant of. In the majority of cases of subacute combined degeneration which have been recorded, the anaemia was not pernicious anaemia. In speaking of their cases Risien Russell, Batten, and Collier state—"There was nothing in the blood of any of the cases in which it was examined to suggest pernicious anaemia."[1]

2. *The very rapid way in which the pernicious anaemia developed and proved fatal.* The blood changes in the terminal stages of the case were characteristic of pernicious anaemia, and the *post-mortem* appearances (free iron reaction in the liver and kidneys and changes in the bone marrow) were typical of this disease. The Prussian blue (free iron) reaction in the liver and kidneys was intense; I have never seen it more marked in any of the cases of pernicious anaemia which I have examined. This is a very interesting point, for in his article on subacute combined degeneration in the forthcoming volume of Clifford Allbutt and Rolleston's *System of Medicine* (a proof of which he has kindly sent me), Dr. Collier states: "The reaction for free iron in the liver has not been obtained in any case."

3. *The difficulty in diagnosis in the early stages.* The symptoms were undoubtedly most suggestive of disseminated sclerosis—none of us who saw and studied the case doubted that we were dealing with a case of disseminated sclerosis.

4. *The age at which the cord symptoms developed* (31), as has been previously pointed out, was much more suggestive of disseminated sclerosis than of subacute combined degeneration. Subacute degeneration of the spinal cord very rarely develops before the age of 35; most cases occur between the ages of 50 and 60; while in the great majority of cases (85 per cent. of 110 cases which had come under my observation up to the year 1904) disseminated sclerosis develops before the age of 35. In my 110 cases of disseminated sclerosis no less than 47, or 42 per cent., commenced between the ages of 21 and 25 years (inclusive); 76, or 69 per cent., between the ages of 16 and 30 years (inclusive); and 85, or 77 per cent., between the ages of 16 and 35 years (inclusive).[2]

5. *The optic atrophy* was strongly in favour of disseminated sclerosis. Optic atrophy is not a feature of subacute combined degeneration of the spinal cord, but it occurs, in my experience, in about 40 per cent. of cases of disseminated sclerosis. In my 110 cases of disseminated sclerosis, definite optic atrophy was present in 40 cases, or 36.3 per cent., and in 7 other cases, or 6.3 per cent., doubtful optic atrophy was present.[3] My additional experience since the year 1904 points in the same direction. The optic atrophy in this case exactly resembled that which is met with in disseminated sclerosis—partial in degree and chiefly confined to the temporal sides of the discs. The acuity of vision was in this case more markedly impaired than it is in most cases of disseminated sclerosis. Further, it is important to note that the dimness of vision was in this case one of the initial symptoms; it developed three years before the anaemia attracted attention. The dimness of vision and the pallor of the discs were without doubt due to optic atrophy and not merely to anaemia or debility.

6. *The remarkable periods of improvement with subsequent relapses* which occurred in this case were highly suggestive of disseminated sclerosis; such alleviations in the severity of the symptoms are not a feature of subacute combined degeneration, but are most characteristic of disseminated sclerosis. On this point, Risien Russell, Batten, and Collier state: "A remarkable feature of the cases was the absence of any improvement of the nervous symptoms under treatment. From the first appearance of the disease to the fatal event, the tendency was for the symptoms to increase, sometimes halting, sometimes progressing rapidly, but never showing any remission. Under treatment the general health and the anaemia improved markedly in some cases, but the nervous symptoms never."[4]

Dr. James Collier, whom I have consulted with regard to the occurrence of optic atrophy and relapses, remissions and periods of improvement in cases of subacute combined degeneration, kindly writes me as follows:

> I have just written the article on subacute combined degeneration for *Allbutt's System*, and I have been carefully into all the cases we have had at Queen Square, and also into all the cases that I have found in the literature. I make the following statement upon optic atrophy: "Optic atrophy has been reported in a good many cases, but it is possible that the pallor of the disc, which is striking in some of the anaemic cases, has been confused with optic atrophy, for I have never myself seen undoubted atrophy of the disc. Dimness of vision is common when anaemia and debility are severe." In several of our cases at Queen Square the note that optic atrophy was present had been made by the house-physician, but in no case was this opinion upheld by Mr. Marcus Gunn and Mr. Paton, who subsequently saw these patients. We have not as yet found any lesions higher than the mesencephalon, and, from the anatomical point of view, one would not expect optic atrophy in this disease. Your second question is of great interest, and is one that I should have answered in the negative two years ago. But since then I have followed to autopsy (1) cases in which the onset was an apparently functional paraplegia which improved for a time, (2) cases in which there was marked temporary improvement, and (3) one case in which the onset was so rapid as to suggest acute myelitis, and in which temporary attacks of paraplegia lasting a week or two had occurred eight months and four months before the onset respectively and had been completely recovered from. This last case was an unusually rapid one, but the pathological condition found by Dr. Holmes was typical. I have always pointed out that the diagnosis of this disease in the early stages from the ataxic paraplegic form of disseminated sclerosis was an important one, but we have not had a case in which this differential diagnosis has been difficult. From our knowledge of the disease and its anatomy it seems to me easy to conceive cases of slow onset in which the clinical picture might be exactly that of typical disseminated sclerosis, for many cases present no anaemia till late.

7. *The vertical character of the nystagmus* was peculiar and interesting.

With regard to the differential diagnosis of subacute combined degeneration of the spinal cord and disseminated sclerosis, Risien Russell, Batten, and Collier make the following statements:

> The early clinical picture of combined degeneration, that of slight ataxy and spasticity, resembles closely that of the common paraplegic form of disseminated sclerosis in an early stage. . . . In attempting to distinguish these two diseases careful attention should be paid to the history. The age at which combined degeneration occurs is not the most common for the appearance of symptoms of disseminated sclerosis. The preponderance of subjective sensations in the legs, the absence of the functional manifestations, of exacerbations and remissions of the symptoms, of nystagmus, and of sphincter trouble, which are so usual in disseminated sclerosis, and the presence of irregular pyrexia are probably of great importance in the early diagnosis of combined degenerations.
>
> The presence of anaemia in an early case of spastic paraplegia should give rise to a suspicion, but the possibility of chlorosis associated with disseminated sclerosis in young women must be borne in mind. A symmetrical affection of all limbs with slight ataxy and spasticity, preponderating in the legs, is a most important distinguishing symptom of combined degeneration.[5]

In the case I am recording all the differential points mentioned by Risien Russell, Batten, and Collier in favour of disseminated sclerosis were present, and, in addition, there was optic atrophy. According to these authorities the preponderance of subjective sensations in the legs was in favour of subacute degeneration; but, on the other hand, the absence of any objective disturbance of skin sensation until the final stages of the case was, in my opinion, in favour of disseminated sclerosis.

8. The cord lesions were striking, and corresponded exactly with those which have been described by Risien Russell, James Taylor, and other observers as characteristic of subacute combined degeneration of the spinal cord associated with anaemia.

REFERENCES.

[1] *Brain*, 1900, vol. xxiii, p. 56. [2] *Clinical Studies*, 1904, vol. ii, p. 201.
[3] Ibid., 1905, vol. iii, p. 23. [4] Ibid., p. 54. [5] *Brain*, 1900, vol. xxiii, p. 58.

THE eighty-second congress of German scientists and medical men willl be held at Königsberg from September 18th to the 24th. Full particulars can be obtained from Dr. Rosenstock, Königstrasse 80, Königsberg.

THE DARRAN EXPLOSION FROM THE MEDICAL STANDPOINT.

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AN explosion took place in the Darran Colliery at 4.30 a.m. October 29th, 1909. Of the forty-five men who were in the pit at the time twenty escaped through a communication between the Darran and Gilfach pits, four men were brought up alive, and twenty-one were killed. One of the rescued died subsequently, and five rescuers lost their lives. The total casualties were twenty-seven.

THE EXPLOSION AND ITS IMMEDIATE EFFECTS.

The explosion, in the opinion of the mining experts who gave evidence at the inquest, arose from shot-firing at the stone marked in the plan. This shot-firing ignited coal dust, and produced the explosion.*

The zone of explosion extended from about 100 yards inbye of the stone to the pit mouth.

The air-bridge carrying the return air across the intake was destroyed, and all the doors between the intake and return air-ways from this point to the shafts were broken down. The ventilation of the pit was thus short-circuited, and the fan, which remained undamaged, at first simply drew the air from one shaft to the other. The downcast shaft was damaged and not repaired until 11.30 a.m.

The positions in which the bodies were found are shown in the plan. An attempt will be made to ascertain as far as possible the exact position of each of the men at the time of the explosion and to trace their subsequent movements.

Nos. 1 and 2, who were brought up alive, say they were sitting down a few yards from the downcast shaft, when they were hurled into the shaft, and Jones (No. 2) was pinned under the cage.

Tovey (1) was found in a dazed condition, unable to move or speak. (I was able later on to diagnose fracture of the base of the skull.) His right hand was badly crushed—three metacarpals were broken. The left side of his face was scorched, and his hair was singed. Fine coal dust had been driven into his face and head.

Jones (2). General bruising and simple fracture of both bones of the right leg. He remained conscious throughout.

Both these men had a good supply of air and showed no symptoms of carbon monoxide poisoning.

Wm. Cleavy (3). This man was stooping down fifteen yards from the shaft when the "blast" came. "I was knocked down, but was able to get up and go to the bottom of the shaft. I could not help the two men there, so went back to look for more help. I got lost in one of the passages between intake and return, and decided to stop where I was." He was found here by the first rescue party. His face and hair were slightly scorched, but he sustained no other injury.

Bodies 4–9 were found in a recess in which it was the usual custom of men to wait before going out. The men were all colliers and dressed. In all probability these six men were sitting down waiting to go out. The bodies all lay with their heads towards the return, and presented more signs of violence than any of the others. All the exposed parts—face and hands—were scorched.

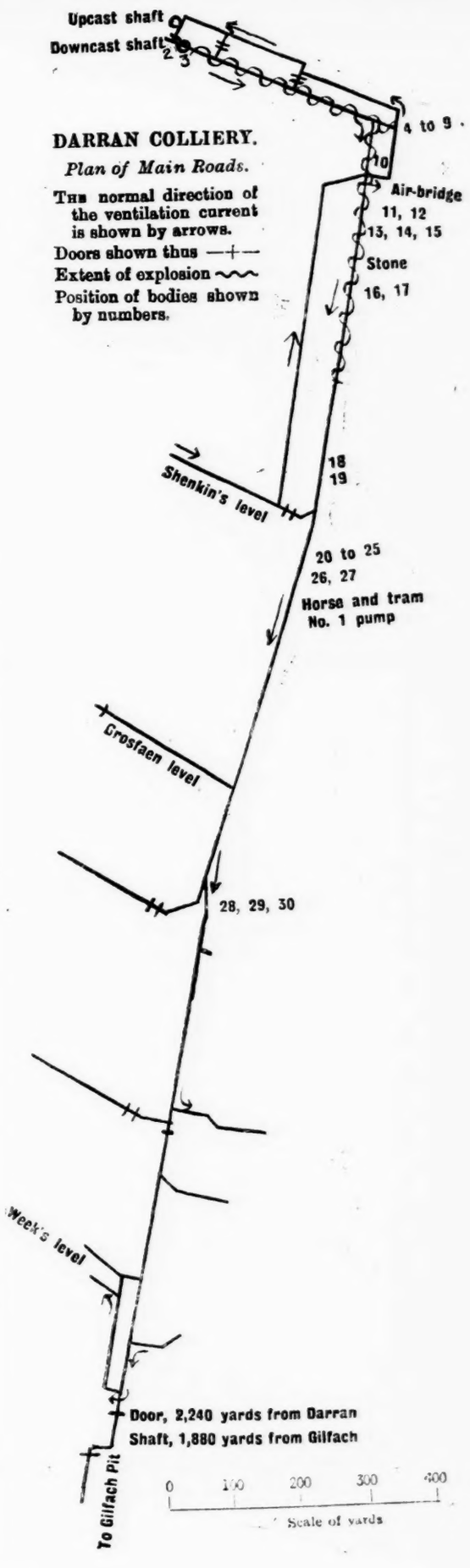
W. Brown (4) was found lying under a fall. The top of his head was completely crushed. The face was covered with fine coal dust driven in; when this dust was removed all the signs of carbon monoxide poisoning were seen. The face and hands were scorched.

Brown could not have breathed after the stone had fallen on to his head. He showed as well-marked signs of carbon monoxide poisoning as any of the other bodies. The fall must, then, have been delayed for some time after the explosion.

I visited the place afterwards with Mr. W. N. Atkinson, H.M. Inspector, and he was able to say, from the clean surface of the fracture left by the fall, that the stone had come down some time after the explosion.

James Weeks (5). Left side of face crushed; malar and inferior maxilla bones fractured; face and hands scorched; well-marked signs of carbon monoxide poisoning, from the effects of which he died.

* For details see the report by Messrs. W. N. Atkinson and F. A. Gray, His Majesty's Inspectors of Mines.[1]



John Evans (6). Face and hands scorched; well-marked signs of carbon monoxide poisoning. No other injuries.

John Tovey (7). Face and hands scorched; right cheek split open. Well-marked signs of carbon monoxide poisoning.

Jos. Vincent (8). I did not examine this body. Dr. Thomas at the inquest said the face and hands were scorched. Compound fracture of the right elbow. He attributed death to "force of explosion," but unfortunately made no examination for signs of carbon monoxide poisoning. All the bodies were covered with fine coal dust driven in, and it was only after removing this that the characteristic signs would be seen. Taking into consideration the other cases the probability is that this man also died from carbon monoxide poisoning.

H. Edwards (9). Face and hands scorched; hair singed. No injuries. Well-marked signs of carbon monoxide poisoning.

D. Edwards (10). This man was seen alive by J. Evans near Shenkin's level after the explosion. He went up the drift, and was found just above the air-bridge, lying on his face in the middle of the road with his head towards the shaft. No signs of burns or other injury. Well-marked signs of carbon monoxide poisoning.

Nos. 11, 12, 13, 14, and 15 were found lying partly in and partly out of adjacent manholes (see plan). Their faces, hands, and hair were all scorched, but they showed no other signs of injury. They all showed characteristic signs of carbon monoxide poisoning, from which they died.

Barker (16) was found reclining against the side of the drift. The face and hands were burnt, the hair singed, and there were well-marked signs of carbon monoxide poisoning.

Anthony (17) was found alive by the first rescue party 60 yards below the stone. He was lying on his face in the innermost corner of the manhole. He was unconscious and breathing stertorously. I saw him the same evening. His face, hands, arm, neck front and back were superficially burned. He was in his shirt-sleeves at the time and all the exposed parts were burned. He died five days afterwards from septic absorption and bronchopneumonia.

David Lewis (18), *W. Edwards* (19) were rescuers. They died of carbon monoxide poisoning, and, of course, showed no sign of injury.

John John (21). The fireman. His face was badly burnt; coal dust and large pieces of coal were driven into the skin and nostrils. The hands and arms were peeling; the finger-nails were loose. His burns were so much more serious than those of the others that I am inclined to think that he was in the drift at the time of the explosion or that he was only partly in the manhole. He showed all the signs of carbon monoxide poisoning.

Cases 20, 23, 24, 25, 26, and 27 showed well-marked signs of carbon monoxide poisoning but no signs of injury.

J. Evans, who escaped through Gilfach, gives the following account of the explosion:

I was walking up the drift with Ball and Cutliffe when we were all suddenly swept off our feet by a rush of wind. We relit our lamps and proceeded up the drift, noticing nothing except a smell of powder (? H_2S) until we reached a point half way between Shenkin's level and the top of the drift. Here we found J. John (21) sitting on the side of the road. His face and hands were badly burnt and his hands were bleeding. He told me he had put four balls of powder on a large stone just above and fired the shot. Lying across the road was Prosser (22) groaning very heavily; he could not move or speak to us. Barker (16) was also lying across the road; he could raise his hand when spoken to.

The air here was warm and dusty. I went on, and the air became thicker and full of smoke.

I went beyond the stone, every step feeling like ten; my forehead became hot as fire, my lamp nearly went out, and I was forced to return. On my way back I found several people trying to help J. John (21). We tried to take John (21) and Prosser (22) out but were not able. We placed Barker (16) in a sitting position against the side of the drift. [One of the rescue party described to me the position in which he found Barker—exactly as Evans said he left him. This tends to show the reliability of Evans's statement.

I told John we could do no more for him, and advised all the other men to come away with me at once, saying I knew the way out through Gilfach. Most men followed me; we met D. Jenkins (23) going up the drift; he did not answer us when we spoke to him. Most of the men with me had by this time lost their heads and were rushing into the levels, instead of going straight on. We met W. Davies (26) and Baragweneth (27) on our way down and asked them to come out with us. Baragweneth asked me if I were frightened. Davies had his horse with him, but unharnessed. There was no tram on the road. We met several men lower down, and finally made our way out through Gilfach.

Bull, Cutliffe, Geo. James, and Syd. Edwards, all of whom escaped through Gilfach, corroborate Evans's story in almost every detail. No one saw Anthony (17). Syd. Edwards says he saw Morgan (20), Ed. Cleavy (25), and Vaughan (24) trying to help Prosser and John. Syd. Edwards, who went above the stone, was slightly affected by the after-damp. He was not able to walk as fast as the others, and was last out. None of the other men seem to have suffered at all, except Geo. James.

In the manhole, where Anthony (17) was found, were four lamps. Taking John's statement to Evans to be correct, it seems reasonable to suppose that 16, 17, 21, and 22 were sheltering in this manhole while the shot was fired. We may also assume that 11, 12, 13, 14, and 15, knowing a shot was to be fired, were sheltering in the manholes above the stone.

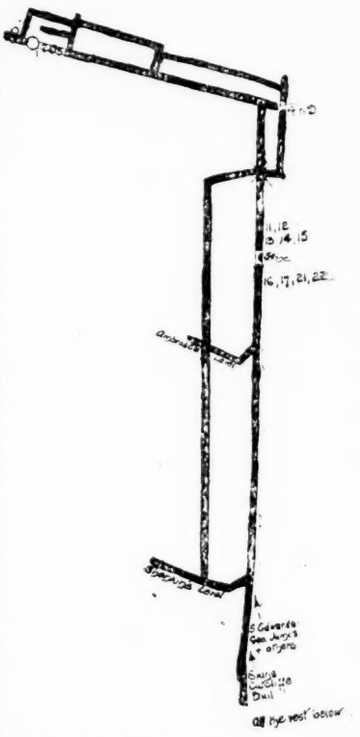


Fig. 1.—Showing supposed position of men at actual moment of explosion (ground plan).

All the men in the actual track of the explosion have now been placed (Fig. 1). The other men were all below Shenkin's level.

We may conclude that the immediate effect of the explosion was as follows: 4 to 9 and 11 to 15 inclusive immediately lose consciousness and do not move again. Of the four men—16, 17, 21, 22—in the manhole, 17 is blown into the innermost corner, where he remains unconscious; the others—16, 21, 22—are blown into the road. They are all unable to move, but John remains quite conscious. There are many men on their way out near Shenkin's level; these all hurry forward and meet near John. Some, J. Evans and Syd. Edwards especially, make an attempt to go forward, but are compelled to retire. They try to relieve John and Prosser, without success, and then Evans leads his party out through Gilfach. Ed. Cleavy (25), Vaughan (24), J. Morgan (20), and Jenkins (23) then come up and are able to take John and Prosser to a recess by No. 1 Pump.

They probably took one man between two, and possibly carried them back. This would account for the fact that Barker (16) was left unmoved. There were only four men, and they were unable to do more. Barker also was a very big man and too heavy to carry.

Meanwhile D. Edwards (10) rushes forward and tries to make his way out. He falls just beyond the air-bridge. Davies (26) and Baragweneth (27) now come up. They offer to go back, bring up a tram, and help the others to take John and Prosser out. They would have to retire about 400 yards and come back. They do so.

Returning, they find the six men unconscious in the recess by No. 1 Pump. They reverse the position of the horse so that it looks towards Gilfach, and then fall unconscious themselves. They were found in the roadway by the tram, together with the dead horse.

Course taken by the After-damp.

A large quantity of the after-damp must have escaped at once up both shafts and through the broken doorways into the return.

At first the greatest quantity probably collected at the

top of the drift, for the following reasons. The explosion probably reached its maximum there, as shown by evidence of greater injury to the bodies and presence of a large fall. More after-damp would be formed here then. The top of the drift would act as a chimney, and the heated air and after-damp would tend to remain at the highest point. (There is a well-marked fall in level from the top of the drift to the stone.) The evidence that men were able to go beyond the stone proves there was not much after-damp there at first. As the heated gases cooled, and with partial return of the natural ventilation, the after-damp moved gradually down the drift, clearing away almost entirely from the main road.

Possibility of Rescue.

Nos. 1, 2, and 3 were exposed for so short a time to the after-damp that their lives were not endangered; 4 to 9, 11, 12, 13, 14, 15 probably lived a very short time, and it is very doubtful if they could have been saved; 10 (D. Edwards) should have escaped through Gilfach; 16, 21, and 22 could not save themselves, and it was in trying to save them that 20, 23, 24, 25, 26, and 27 (and possibly 10) lost their lives.

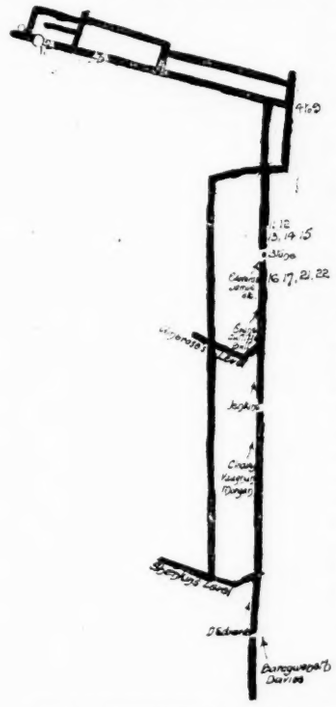


Fig. 2.—To show supposed positions of men five to ten minutes after the explosion.

Why should Anthony have lived? Barker in almost the same position died. Anthony may have been less susceptible to carbon monoxide than Barker. Both were young, and Barker was a very well-built man. Barker was sitting propped up against the side with his head, say, 2½ ft. above the ground; Anthony was lying on the ground. Possibly a stream of air entered along the ground and brought the necessary amount of oxygen to Anthony, while, Barker, who was above this stream, breathed air containing more carbon monoxide.

THE RESCUE OPERATIONS.

From the Darran End.

The pit carpenter, W. Evans, went down the ladder in the upcast shaft immediately after the explosion. He was followed by E. Davies and T. Matthews. They first attended to Jones (1) and Tovey (2), and after some trouble succeeded in getting Jones free. David Lewis then came down, and with Ed. Davies and T. Matthews proceeded down the main road. Wm. Cleavy (3) got up from the ground and called to them. They took him along with the intention of taking him out through Gilfach.

They went below the air-bridge, when Cleavy became affected by the after-damp. (He had probably already absorbed a good deal of CO before starting.) The party retired, and met E. Owen and Ned Jones.

Davies, who had been down since 5 a.m., was also overcome; he was sent back to the pit mouth with Cleavy.

Lewis, Owen, and Jones then proceeded down the drift; they found the bodies 10, 11, 12, 13, 14, 15, 16, in the positions shown.

They could hear someone breathing, and eventually found Anthony in the manhole. His breathing was so noisy that they heard him 20 yards off. They tried to do artificial respiration, but desisted as the skin (epidermis) was coming off his arms. He was quite unconscious.

Ned Jones was sent back to fetch Dr. Turner (8 a.m.); Lewis and Owen then went on by themselves as far as Shenkin's level. The air here was very thick, and Owen was unable to go any further. They retired, and met Dr. Turner, Ned Jones, E. Richards, and W. Edwards.

Dr. Turner sent Owen back to the pit mouth with Richards, and gave orders that Anthony was to be taken to the pit mouth. This was done by E. Davies, who had returned the second time with fresh help. Owen, on return to the bottom of shaft, revived, and was able to superintend repairs to the doors.

Dr. Turner, Edwards, Lewis, and Ned Jones then went down the drift. Jones, who had been down some hours, was obliged to return; he was able to go out by himself. The others then went down the drift as far as Shenkin's level, when Dr. Turner, who was leading, noticed that he had no reply from Lewis; he turned back, and saw Lewis slide slowly into a sitting position. He shouted to him, and tried to rouse him, but obtained no reply. Edwards also gradually subsided, but remained conscious. Dr. Turner asked him for the jack of beef-tea which he was carrying; Edwards did not speak, but let the jack fall. They both became unconscious, and Dr. Turner was unable to rouse either.

Dr. Turner had no symptoms until he exerted himself in trying to rouse the other two. He then felt tired, wanted to lie down, but struggled on as far as he could, falling several times, and finally losing consciousness.

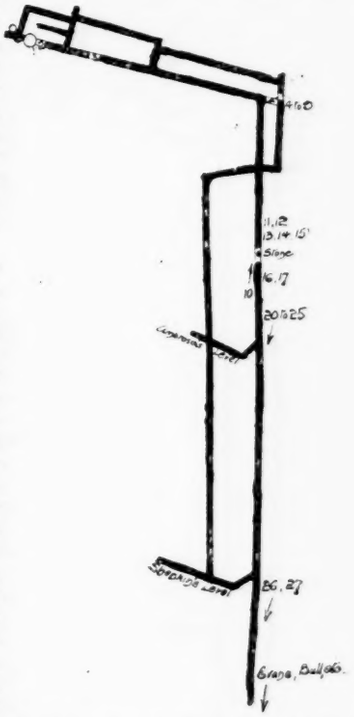


Fig. 3.—To show position of men fifteen to thirty minutes after explosion.

Ned Jones for the third time, with Wm. Thomas (under-manager), Meredith and C. Edwards, went down the drift at 9 a.m. They found Dr. Turner unconscious, but breathing. Edwards was told to carry Dr. Turner out, and Thomas proceeded a short way down the drift. He found no one, and catching up the others, found that Edwards could not carry Dr. Turner. Thomas himself then took Dr. Turner on his back and carried him for about 30 yards. He was then obliged to drop Dr. Turner and struggle on himself. Ned Jones relates how he saw Thomas drop on his knees, crawl forward, and finally stop—he himself was just able to crawl beyond Thomas. Evan Owen had by this time returned with E. Davies and others to the air-bridge. He saw a light below and shouted; receiving no answer he proceeded down the drift and found the four men all unconscious in the roadway. Ned Jones was in front with his lamp in his teeth, and with his chin resting on it. The lamp was thus kept vertical and alight. The four unconscious men were brought to the pit side of the air-bridge, when Owen again collapsed.

All, except E. Davies, were overcome, but a fresh party of rescuers was able to bring all the men out.

Subsequent operations were all directed to the recovery of Dr. Turner. He was soon found, but the tales are so conflicting that I am unable to make out a definite account. He was treated on the pit side of the air-bridge with oxygen and artificial respiration and was only brought out about 2.30 p.m.

W. Edwards and D. Lewis were both dead when found. Mr. Grey, Inspector of Mines, then gave orders that no one was to go beyond the air-bridge until it had been repaired (3.30 p.m.).

From Gilfach.

The first rescue party, consisting of Mr. Bowen, manager (30), G. Griffiths, overman (29), D. Morgan, fireman (28),

D. Jones, collier, J. McCarthy, collier, went forward about 5.45 a.m. They walked very quickly to the door communicating with Darran Pit, so quickly that Mr. Bowen felt tired when he arrived there. The door between the two pits was shut.

Entering the Darran Pit they passed a horse feeding in Week's level. Proceeding carefully they noticed a distinct smell of "powder" (H_2S?). Mr. Bowen sat down and asked the others how they felt. Morgan said he was a little dazed. Mr. Bowen asked for a drink of tea, and then said, "What about going a little further, boys?"

"We started, and had only gone about ten yards when Morgan, who was second, fell. Mr. Bowen went on a yard or so; we shouted, and he dropped his stick and came back. I carried Morgan's head; Jones and Mr. Bowen took one leg each. We went back as quickly as possible, Gomer Griffiths leading with the light. We had only gone back about forty yards when Mr. Bowen said, 'Put him down.' Mr. Bowen and Griffiths then dropped almost together. Jones and I ran back for help" (McCarthy). Mr. Bowen's stick was found forty yards beyond the three bodies (28, 29, 30), which were all together.

A second rescue party say they heard Jones and McCarthy shouting for help, and saw them fall unconscious near Boot's level. They carried the two men back.

A third rescue party then went forward about 7 a.m. Several men were partly overcome and had to be helped back. One member, Ned Rees, was left behind unconscious. The party was not able to advance very far into the Darran Pit.

The last rescue party was led by Mr. Watkins, manager of Bargoed Colliery, about 8 a.m. He was not allowed at first to enter the Darran Colliery, but when he was told that Ned Rees was left behind he blocked up the Gilfach return airway and went forward (8.45 a.m.), taking the Gilfach air with him. Ned Rees was found unconscious, breathing very noisily and with his tongue out. He was carried back. Proceeding, they found a horse in Week's level (see above), unconscious and breathing very heavily. Mr. Watkins examined all the double partings and felt dazed every time he entered one. They worked their way up to Boot's parting taking most of the air with them. Here they found a dead horse. There was no indication of a cap in the lamp. A resinous smell resembling that of burning timber was noticed. The men were continually questioned as to how they felt, and in one case, after a satisfactory reply ten yards before, one man fell without warning. "One more man fell and then I fell myself. A few yards before this I had taken rest and felt quite well. My legs became weak and the man behind noticed I was walking unsteadily" (Watkins).

The party then retired, Mr. Watkins on a stretcher; he soon recovered and returned, sending on a *fresh* party of seven men, followed shortly afterwards by a second party of seven. The first party recovered the three bodies and brought them back. Phil Williams and Parry then went on further, and had to be assisted back by the second party.

All retired, and passing Week's level they found that the horse had been revived by the fresh air. The horse was on his feet, and just able to stand up.

All rescue operations from Gilfach were then suspended.

Of the first rescue party three died and two escaped. They were all under similar conditions.

The three men who died were officials, the others colliers. Mr. Bowen had had nothing to eat since the previous evening, Griffiths had been working all night, and Morgan had had a long walk to the pit. McCarthy and Jones were fresh, and had just had a good breakfast; being colliers they were also more accustomed to physical exertion.

Symptoms of After-damp Poisoning.

The following accounts were given by the men:

J. McCarthy: No symptom until he tried to carry back Morgan; he then felt his breathing becoming deep and laboured. When he ran back for help he felt his legs weak and heavy, and had feeling of weight on his back. Felt very sick. When he came round he felt very cold, had marked shiverings, and a bad headache.

Thomas McCarthy: Slightly affected only. Giddy. Air thick and difficult to breathe.

Mr. Watkins (Manager): Felt dazed after going into double partings. Became tired; his legs gave way; marked palpitation. He was walking unsteadily before he fell. "A few yards before I fell I had taken rest and felt quite well. My urine was very thick afterwards."

Ed. Owen (Under-manager): Noticed the air was very thick. Pain in back of head; weakness of legs, so that they felt very heavy. Unsteadiness. He was better after return to fresh air, but again collapsed when he went down the drift again. "Quite done up." Marked nausea, with headache and giddiness when he reached the pit top a second time; he rapidly become worse, and fell outside the offices.

W. Thomas (Under-manager): None until I carried Dr. Turner. I felt him very heavy, and my knees became very weak. I had to breathe very deeply, and had headache. I was obliged to drop Dr. Turner, and was able to struggle on with great difficulty. I thought I had gone 20 yards, but was only just beyond Dr. Turner.

Ned Jones: This man went down the drift on three occasions; he was obliged to retire twice, but returned after he had been in fresh air for some time. "Quite done up; no power in my legs; quite unable to help to carry Dr. Turner. I felt my legs going and my head swelling. When I came round I was shivering, and felt very cold for a long time. I was very weak next day."

Ed. Davies (first rescue party): "Eyes burning, throat parched, legs weak. I was obliged to return, and improved in fresh air. After helping to bring Mr. Thomas back, I was again done up, but was able to walk out."

J. Evans (in pit when explosion occurred): "Beyond the stone the air was full of smoke and dust, and very hot. My lamp nearly went out. Great heat across my forehead. Felt my legs very weak; each step was like ten."

Syd. Edwards (in pit): "Tried to go forward, but air was so thick and breathing so difficult that I had to return. On my way back I felt very weak and was unable to keep up with the others. I was quite done up until I met the fresh air."

Mr. Hannah (General Manager, Ferndale)—Evidence at inquest: "Mr. Trump and I went to within 6 yards of Shenkin's level. We found it difficult to breathe; had palpitation and pungent feeling of the eyes and nose; worse coming back."

Dr. Turner: No symptoms until he exerted himself to rouse the others. "I felt tired, wanted to lie down, had weakness of the legs, and fell several times."

Summary of Symptoms.

It is most important to realize that symptoms may be entirely absent and the man fall without warning.

Once symptoms appeared they always increased in severity unless a return to fresh air was made at once.

It follows that as soon as symptoms appear the man should at once retire.

Symptoms are always increased and in many cases only brought out by exertion.

A man who had been down before collapsed before a fresh man.

Symptoms sometimes increased when fresh air was reached.

Objective Symptoms.—The man would be silent, not answering when spoken to; his gait would be unsteady, slow, and rolling from side to side. Then he would fall and become unconscious, with stertorous breathing.

Subjective Symptoms.—Tired feeling, weakness in knees and legs, giddiness, palpitation, and difficulty in breathing. All movement becomes difficult, the legs feel heavy, and there is sense of weight on the back. Time sense delayed. "Every step like ten." Then would come complete helplessness, followed by unconsciousness.

Physical Signs (of Carbon Monoxide Poisoning).

Severe.—Unconsciousness, with stertorous breathing, which at times becomes very irregular and jerky. The pulse is small, very irregular, and intermittent. The body is convulsed with severe shivering attacks. Recovery is shown by regularity of breathing with steady pulse, and, after a variable time, return of consciousness.

Mild.—These men appear stupid, are unable to walk without assistance, and look something like "an incapable." They are often sick, feel cold and miserable, but soon recover with warmth. Some cases showed excitement, but I believe this was due to the brandy they received.

Treatment of After-damp Poisoning.

Preventive.

No one should advance into the zone of explosion until the ventilation has been, at any rate partly, restored. The air should be taken with the party.

It is very important to impress on the men:

The very great danger of the after-damp.

The fact that carbon monoxide gives no indication of its presence either by a cap in the lamp or by smell. Also, that the lamp burns well in a poisonous percentage of the gas.

Never to go in small parties; there should be six or seven in each party.

The rescue party should be under a good leader, and should be followed by a reserve party. They should be all fresh and have had a meal recently.

A canary or tame mouse should be taken with the party, and the movements of the animal carefully watched. The party should return on signs of collapse of the animal.[2] They should immediately return if one of their number is affected in any way. The alternative is the use of one of the rescue appliances.

Curative.

1. *The man should be removed to fresh air without delay.* This should mean the pit top. It is useless to attempt treatment in an atmosphere which contains carbon monoxide.

2. *The patient should be kept warm.* This is of the greatest importance. Several cases collapsed more than once after coming round, and were quickly revived by warmth.

3. *Oxygen should be administered in large quantities.* Oxygen should be given warm. One oxygen cylinder may be made to serve several patients at once by filling football bladders with the gas; the bladders could then be warmed in front of a fire and continually refilled.

4. *Artificial respiration*, if necessary. This should only be done in a pure atmosphere or the patient will be made worse. Schäfer's method is the best. This method was found very useful in men who collapsed after coming round.

5. *Injection of strychnine and adrenalin.*

6. *No exertion should be allowed.* The men should be carried home when they have recovered.

POST-MORTEM SIGNS OF CARBON MONOXIDE POISONING.

I was unable to make any internal examination. The bodies were all well preserved eighty hours after death, and rigor mortis was still well marked. In case of the rescuers one glance was sufficient to determine cause of death.[3] The face was of a bright pink colour, ears and mucous membranes of lips of the same tint. The *post-mortem* stains were also pink. The man almost looked alive. I saw no evidence of venous engorgement. I tried to obtain blood from the heart of one body by a syringe, but was only able to draw off pink serum.

In all the other cases the pink colour could be seen either inside the mouth or by rubbing off the superficial layer of skin, which was in many cases loose as the result of burns.

CHARACTER OF THE BURNS.

Fifteen men were burnt more or less severely. The burns were severe, according to amount of body exposed. Anthony (17) and John (21), who were in their shirts, had face, hands, arms, neck, and chest affected. The men (4–9, 11–15) were dressed, and only had hands and face burnt. Tovey (1) at pit bottom was burnt by hot coal dust. In all cases the superficial layer of the skin was separated and was curled up into small areas. In John's case the burns were more extensive and the finger-nails were loose. Possibly in his case the injuries were due to the action of force. The hair in many cases was singed.

Two men were injured on top of the pit.

A.—*Skyrme:* This man was stepping into the cage when the explosion occurred. He was thrown against the side of the cage, but received no definite injury. He suffered afterwards from great nervous depression, had marked tremor of face and hands, was tired easily, and did not return to work for two months. He has now apparently recovered.

B.—*T. Williams:* Acting as banksman. Cut eyelid and small scalp wound. This man also was very nervous afterwards; he started whenever spoken to, had marked tremor, and was idle six weeks.

Table Showing Cause of Death.

No.	Name.	Burns.	Injuries.	Cause of Death.
	A. RESCUERS.			
18	Wm. Edwards ...	*Nil*	*Nil*	Carbon monoxide.
19	D. Lewis	,,	,,	,, ,,
28	D. Morgan	,,	,,	,, ,,
29	G. Griffiths*	,,	,,	,, ,,
30	Wm. Bowen*	,,	,,	,, ,,
	B. MEN IN MINE AT TIME OF EXPLOSION.			
10	D. Edwards	*Nil*	*Nil*	Carbon monoxide.
20	J. Morgan	,,	,,	,, ,,
24	Chas. Vaughan ...	,,	,,	,, ,,
25	Ed. Cleavy	,,	,,	,, ,,
23	D. Jenkins*	,,	,,	,, ,,
27	J. Baragweneth ...	,,	,,	,, ,,
26	W. Davies	,,	,,	,, ,,
9	H. Edwards	Face and hands scorched; hair singed	,,	,, ,,
11	D. McCarthy	,, ,, ,,	,,	,, ,,
12	E. Roberts	,, ,, ,,	,,	,, ,,
13	Lewis Morgan ...	,, ,, ,,	,,	,, ,,
14	Ambrose Jones ...	,, ,, ,,	,,	,, ,,
15	M. Coombes	,, ,, ,,	,,	,, ,,
16	H. Barker	,, ,, ,,	,,	,, ,,
21	J. John	Face and hands badly burnt	Nose full of pieces of coal, etc.; nails coming off	,, ,,
22	E. Prosser	Hands and arms	*Nil*	,, ,,
5	J. Weeks	Face and hands scorched	Left side of face crushed	,, ,,
7	John Tovey	,, ,,	Right cheek split open	,, ,,
4	W. Brown	,, ,,	Top of head crushed by fall (after death)	,, ,,
17	S. Anthony	Face, hands, arms, neck, front of chest and head	—	Died 5 days afterwards; septic infection and bronchopneumonia.
8	Jas. Vincent*	Face and hands	Fracture right elbow-joint	? Carbon monoxide; ? violence.

* Seen by Dr. Thomas only, to whom I am indebted for the notes in Cases 23, 30, 23, and 8.

Progress of Cases 1, 2, and 3.

1. *Eli Torey:* Hand much deformed, and at present useless. The left tympanic membrane was ruptured, and he is still deaf on that side. He had no symptoms of nervous depression.
2. *Evan Jones:* Fractured leg. No nervous symptoms.
3. *Wm. Cleary:* No definite injury, but complained of weakness after any slight exertion. Marked tremor of hands. Well-marked nystagmus also set in immediately after accident, although he had had no trouble from his eyes before. Is only able to do light work still.

It is interesting to note that, of these five cases, 1 and 2 had marked physical injuries, but no nervous symptoms, while the others had marked nervous symptoms but trivial injuries.

After-Results of the Explosion.

All the cases who suffered from after-damp recovered very quickly, with one exception: J. McCarthy, of the first rescue party, was unable to work for six weeks. He suffered from great nervous depression, inability to perform any physical exertion, and loss of appetite. He showed marked weakness of grip, with tremor of hands.

A. Thomas, who was in charge of a pump underground on the night of the explosion, and who escaped through Gilfach, is also at present unable to work. He suffered from great nervousness, loss of appetite, sleeplessness, and weakness. The other men were all able to resume work when the pit started.

References.

[1] *Report to the Home Secretary on the Darran Explosion.* By Messrs. W. N. Atkinson and F. A. Gray, H.M. Inspectors of Mines. 1910. [2] Haldane and Douglas, *Transactions, Institution of Mining Engineers*, vol. xxxviii, p. 267, 1910. [3] Haldane, *Report to the Home Secretary on the Causes of Death in Colliery Explosions and Fires*, 1896.

TRIGEMINAL NEURALGIA AND ITS TREATMENT BY ALCOHOL INJECTION.

BY

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Owing to the frequency of dental caries, or other causes connected with the teeth, neuralgic pain in the area of distribution of the fifth cranial or trigeminal nerve is one of the commonest disorders calling for treatment. Excluding dental neuralgia due to caries, erupting or impacted teeth, periostitis, etc., errors of refraction and other ocular and nasal troubles, antral and other sinus disease, there yet remain a number of cases of intractable neuralgia affecting one or more of the divisions of the fifth nerve, whose cause is either irremovable or else cannot be discovered. Prominent amongst these are the cases of true tic douloureux, often spoken of as trigeminal neuralgia. It has been a matter of general agreement that true tic douloureux, once acquired, persists indefinitely until either death or removal of the Gasserian ganglion has brought relief. Cases of so-called cure following cataphoresis or other electric treatments, or the use of various drugs, have probably been either not instances of the disease at all, or else the relief was transient, and recurrence of the pain soon takes place. The only treatment besides extirpation of the Gasserian ganglion that gave any real relief was resection of the nerve trunks, and this often failed, as in the cases of neuralgia of the second division. When the pain affected the upper jaw as well as the skin of the nose, lip and cheek, unless the superior maxillary nerve was resected intracranially no improvement resulted, as peripheral resection of the infraorbital nerve alone would not influence the pain in the upper jaw, owing to the dental nerves being given off from the trunk of the nerve some distance behind the point of resection at the infraorbital foramen. Pain referred to the lower jaw alone, or to the supraorbital nerve, was often relieved for one or two years by division of the inferior dental nerve at the angle of the lower jaw, or of the supraorbital nerve at the notch respectively. In neuralgia of the third division, however, if the pain was referred to the tongue and auriculo-temporal nerves in addition to the lower jaw, peripheral resection became more difficult. The real reason, however, of the failure of the treatment by peripheral resection of the nerves, was the impossibility of repeating the operations when the pain recurred, due to regeneration of the nerve, which invariably occurred in from one to two or three years. Thus, extirpation of the Gasserian ganglion was the only real remedy, and that had the advantage of producing a permanent cure, some cases having now been free from pain for more than fifteen years since that operation. It is, however, an operation of considerable severity, and many patients have refused to undergo it, and preferred to submit to the pain, rather than undertake the risk, which the latest statistics show to be about 7 per cent., even in skilled hands.

In 1903, Schlösser,[4] a Munich ophthalmologist, published his method of injection of strong alcohol into the main branches of the fifth nerve at their points of exit from the skull at the deep foramina. The action of the alcohol instantly paralyses the nerve, destroying the nerve fibres at the point of injection, if the needle has properly punctured the nerve sheath. The immediate result is anaesthesia to all forms of sensation on the skin and mucous membrane supplied by the nerve below the point of injection, and, if the third division of the nerve is injected at the foramen ovale, there will also be motor paralysis of the masseter, pterygoids, and temporal muscle. Experimental work by Finkelnburg[1] has shown that degeneration of the nerve fibres of the ordinary type follows injection of a nerve trunk with strong alcohol, so that this method practically amounts to a chemical resection of the nerve. The advantage of this method over resection by the ordinary method of incision is that the needle leaves practically no scar, and it is possible to repeat the operation indefinitely, whenever pain returns after regeneration of the nerve. Schlösser[5] states that alcohol injection is less successful in those cases in which resection of the nerves has previously been done. This has not been my experience in three cases in which the inferior dental, infraorbital and lingual nerves had been divided. In each case the relief of pain after injection was complete.

During the last twenty months, between October, 1908, and May, 1910, I have treated with alcohol injections 50 cases of neuralgia of one or more branches of the trigeminal nerve. In this period I have had sent to me 38 cases of true tic douloureux, 23 in private practice and 15 in hospital. Of these 38 cases I have treated 33 with injections of strong alcohol into the affected nerve trunks at their foramina of exit from the skull. Two of my cases have been unsuccessful, owing to my failing to hit off the nerve, and the pain remained uninfluenced. One case died suddenly of angina whilst awaiting the injection treatment to be begun; two refused all suggestion of any form of operative treatment, and one is considering the question. Another, a woman with bilateral spasmodic neuralgia of the second and third divisions, which has continued off and on for over thirty years, ever since she was 17 years old, improved somewhat under butyl chloral hydrate, and injection treatment was consequently postponed. The remaining 31 cases were all completely relieved of the pain in the affected nerve, as the result of the injections, for periods varying from two months to eleven months and more. Nine of my cases have had recurrences of the pain after intervals of complete freedom varying from two to nine months. Five of these cases have been re-injected, causing much deeper anaesthesia than before, and their next interval of relief will almost certainly be much longer. The short interval of two months' freedom occurred in case 35, a woman with tic of the right third division mostly, with some reflected pain in the upper jaw, of six years' duration. Injection of the foramen ovale on March 5th, 1910, must have been perineuritic, not into the nerve, as no anaesthesia at all was produced, but her pain was instantly relieved, and did not recur until May 13th, and then in the lower jaw only. On May 14th I again injected the foramen ovale, producing complete anaesthesia of the inferior dental and lingual nerves, though only slight anaesthesia of the auriculo-temporal, and no paresis at all of the motor branch. She has been perfectly free from pain since. Three cases injected in June, 1909, are still quite free from pain, over eleven months, and the remaining 19 cases, which were injected between the end of August, 1909, and May 14th, 1910, have so far had no recurrence.

Another common type of trigeminal pain, though quite distinct from tic douloureux, and yet equally curable by alcohol injection, is supraorbital neuralgia, or brow ague. Of these I have injected eight cases with alcohol at the supraorbital notch, with the best possible results, the pain disappearing generally at once, as though by magic,

though in two cases it did not disappear finally until four or five hours after the injection. Of late years these cases of supraorbital neuralgia have been fairly common as sequelae of influenza. The pain is agonizing while it lasts, and is very periodic, usually starting about 10.30 a.m., and lasting without intermission until about 5 p.m., returning every day, perhaps for weeks. The periodicity of the pain is suggestive in its resemblance to the supraorbital neuralgia or brow ague due to malaria. I have not come across any such malarial neuralgia, but I think it would probably yield to injection with alcohol of the supraorbital nerve at the notch, in the same way that the post-influenzal type does.

I have also used this method for injecting the superior maxillary nerve in two cases of chronic antral disease with periostitis, for the inferior maxillary nerve in three cases of inoperable carcinoma of the tongue and base of skull, in two cases of chronic neuritis of the ophthalmic division of the fifth nerve, two cases of neuralgia of the auriculo-temporal area of a migrainous type, and one case of sclerosis in the medulla involving the spinal root of the fifth nerve, causing neuralgic spasms in the analgesic facial area.

Indications.

As the result of this experience, it appears clear to me that the alcohol injection method is indicated under the following conditions in any persistent neuralgia:

1. When the site of irritation or injury to the nerve is more or less peripheral, so that the nerve can be injected on the central side of the lesion. No benefit results from alcohol injection of a nerve below the point of irritation. This method is therefore contraindicated in tabetic and in post-herpetic neuralgia.

2. When paralysis of the affected nerve will not cause extensive muscular palsy. Thus injection into the sciatic nerve, or into either of the nerve trunks of the upper extremity, is contraindicated.

I need not repeat the description of Schlösser's method of working with a very stout needle like a cannula, with a blunt stilet or trocar projecting beyond its point, as I do not consider it is the best method. I have followed Sicard[6] in using finer needles, without any projecting stilet, and I entirely agree with him that the use of a blunt stilet, in order to avoid vascular injury, is unnecessary. I, however, use drawn steel needles, not of platinum, as Sicard recommends. For the foramen rotundum and foramen ovale I use hollow steel needles, 2½ in. or 64 mm. in length, made for me by Messrs. Maw and Son, in two sizes, with an outside diameter of 0.8 and 1.2 mm., the points being short and bevelled at an angle of about twenty degrees. Of late I have been using the finer needle in preference to the stouter size, as it causes less pain, though it is rather more difficult to work with. The handle or butt ends are round, with a milled grip, and bored accurately to fit a Record syringe. I have the milling incised with a file in line with the bevelling of the point, so that when the needle has been inserted I can direct the orifice of the needle towards the foramen by rotating the needle until the file mark is directed towards the foramen. With ordinary care there is no danger of breaking off the point, and I consider a platinum needle unnecessary. Although a blunt stilet projecting beyond the point is inadvisable, in my opinion, a stilet to fit the bore of the needle as far as the commencement of the bevelled point is necessary, to prevent the interior of the needle becoming filled with blood clot whilst working it down to the deep foramen. For this purpose I use the ordinary brass wire supplied with such needles, bending the end projecting from the handle at a right angle, so as not to interfere with the fingers when working.

As soon as the nerve is found at the foramen I withdraw the wire, and attach the syringe, ready filled with 90 per cent. alcohol, to the needle, and commence to inject slowly two or three drops. If the needle is correctly placed in the nerve, or even touching the outside of the sheath, a sharp burning pain will instantly be felt over the area of the distribution of the nerve, lasting about fifteen seconds, and gradually dying away. As soon as all the pain has disappeared, three or four more drops of the alcohol are injected, causing a repetition of the same burning pain, but lasting probably a few seconds less. Thus, a few drops at a time, from 1 c.cm. to 1.5 c.cm. is injected, the pain produced with each succeeding push of the syringe being less and less. The syringe is then detached, and the needle steadily withdrawn, a sterile sponge being then firmly pressed over the site of the puncture for three or four minutes, until the oozing of the few drops of blood that always escape has ceased. A small collodion dressing, the size of a threepenny bit, is then applied, and left on for four days.

I invariably boil my needles, wire stilet, and syringe in weak soda solution immediately before use, as strict asepsis must be observed. The skin over the site of the puncture is previously sterilized with ether soap, followed by a solution of lysol, 1 in 3 of spirit. This is wiped off with spirit after a few seconds, as, if left longer, the skin is apt afterwards to become sore, and later will peel.

The method of directing the needle towards the deep foramina I described[2] fully in February, 1909, and I have little or nothing to add on that point. The question of whether general anaesthesia should be used or not is, in my opinion, one which must be considered for each patient. In five of my patients at least, four women, and in one man, it was quite impossible to attempt the injection without general anaesthesia, owing to their want of self-control. I certainly prefer to make the injections without general anaesthesia, as there is then available a valuable guide to the nerve in the sensations of the patient, who will at once complain of pain in the region of the distribution of the nerve as soon as the needle touches it. Then, as soon as a drop of the alcohol is injected into the nerve, the characteristic burning pain is felt over the same area. With general anaesthesia this indication is absent, and the needle must be guided in the right direction, first, by an intimate practical acquaintance with the correct line and depth, which can only be acquired by experience on the articulated skull and on the dead body. This study of the anatomy of the parts concerned enables the operator to picture before him the foramen and its bony landmarks, so that he is able to recognize what bony parts his needle is touching, and guide it accordingly. In my first paper[3] on this subject I described a method which I then thought combined the advantages of general anaesthesia without losing the indication of the patient's evidence of pain when the needle touched the nerve. The patient was allowed to come round partially from the anaesthetic, after the point of the needle had been worked to the probable neighbourhood of the foramen. Then, pushing on the needle into the nerve was accompanied by a spasm of the patient's face as though feeling pain, though afterwards there would be no memory of what had occurred. I have found this method successful on two different occasions, but I am now convinced from further experience that it is fallacious, and that the same spasmodic reaction of the features may occur when the needle misses the nerve, and neither anaesthesia nor relief from the pain follow the operation.

A description of one typical case of neuralgic tic of the third division will suffice. Usually the pain develops gradually, stabs of pain in the cheek or jaw suggesting toothache, so that visits to the dentist, and perhaps total removal of the teeth from the affected jaw, are the earliest remedies sought. The following is an instance of absolutely sudden onset of the pain, which I have met with in four cases, all women:

CASE XIX.

Miss S., aged 50, while at lunch nine years ago, felt a sudden crash on the right side of her jaw, as though she had broken her jaw or a tooth. This was not very painful, but at every meal afterwards she noticed sudden pains, like flashes of lightning, in the right upper jaw. Any movement of the jaw, or talking, would also bring on the pains, for the first year or two during the first few minutes of the meal only, the pains disappearing as suddenly as they came. She described the pains as being "like fireworks playing along the sides of the cheek and then exploding in pain." Her attacks at first used to last for five or six weeks, and then might disappear for months, once for nearly a whole year. In 1908 she had an attack lasting from June to August, and then no more pain until March, 1909, when it started gradually, and then became severe, and lasted until I saw her at the end of August. The pain goes into the tongue, and runs along the lower jaw and into all the lower teeth up to the middle line, but not into the lip, though movements of the lips may start the pain. In the right upper jaw the pain runs only as far as the first bicuspid. The pain also runs up on to the side of the head in front of the ear, and also into the right ear and tragus, and the pinna often feels raw, and she sometimes cannot lie on the right side because of the pain.

Pressure on the lower lip, especially over the mental foramen, and sometimes over the malar bone, will start the pain, and at other times these spots are quite insensitive. No salivation. With the spasms of pain the angle of the mouth may be drawn to the right and the tongue curled up. Resisting the spasm makes the pain worse.

She had never suffered from toothache in her life, and her teeth were pronounced quite sound when the neuralgia commenced. Three years ago she was advised to have the Gasserian ganglion removed, but she refused. On September 4th, 1909, under chloroform, I injected the right foramen ovale successfully, producing complete anaesthesia of the right inferior maxillary nerve, as described in Fig. 2. There was no loss of taste, but the muscles of mastication on the right side were paralysed, and the jaw deviated to the right on being opened. At first the right side of the tongue and lower jaw felt wooden, and she had to eat on the left side, because she lost the food if it got on to the right side. The pain disappeared entirely from the date of the injection, and, although the anaesthesia has gradually diminished, there has been no further return of pain hitherto.

If general anaesthesia is used, chloroform or ether should be employed, not nitrous oxide or gas and oxygen, as the muscular spasm induced in the masseter and pterygoids by the latter interferes very seriously with the proper guiding of the needle. Consequently, whenever possible, I prefer to make the injections without any general anaesthetic, using only ethyl chloride spray for numbing the pain of puncture of the skin. I have tried anaesthetizing the track of the needle with eucaine and with stovaine, but have not found that it appreciably reduced the pain. After all, as several of my patients have told me, the pain

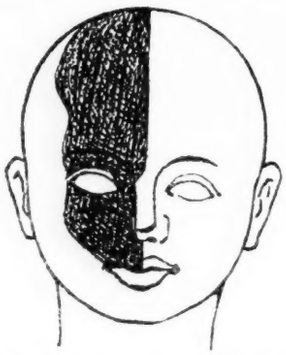

Fig. 1.—Chart of the cutaneous anaesthesia to all forms of sensation, in Cases V, XXVII, XXXIV, and XXXVI, resulting from injection of the supraorbital notch and foramen rotundum. The chart is diagrammatic for Cases V and XXXVI, in which the left side was affected. In addition to the area of skin shown, the anaesthesia was also complete on the inside of the nostril and septum, on the whole of the upper gum, inside of cheek above the line of the teeth, and on the hard palate as far back as its junction with the soft palate. In some cases of injection of the supraorbital notch the triangle of skin bounded by the notch, the middle line of the forehead, and the hair line escapes anaesthesia, owing to alcohol not diffusing to the supratrochlear branch.

of the injection is not so severe as a spasm of the neuralgic pain from which they are constantly suffering, and I have found that patients with good self-control bear it perfectly well, especially the educated class met with in private practice. The most difficult subjects are old women of the almshouse and hospital type.

Results.

Of the 33 cases of tic douloureux that I have treated by alcohol injection, 31 were completely relieved of all pain as the result; 9 of these received the successful injection under chloroform, although in 7 (6 women and 1 man) I had previously attempted to make the injection, using only the ethyl chloride spray. In all these 9 cases deep anaesthesia of the nerve distribution resulted, proving that the nerves had been properly hit by the injection. In 7 of these 9 patients I injected the foramen ovale, in 5 the foramen rotundum, and in 1 case the supraorbital nerve in addition to both the other divisions. In one of the 9 I have injected both the second and third divisions on each side twice under chloroform during the last twenty months. In 22 other cases, using ethyl chloride spray only, I have successfully injected the second division in 11 cases, the third division in 9 cases, and the supraorbital nerve in 8. Two of the cases had all three divisions involved, and in three others the neuralgia affected the first and second divisions together. In 4 of the cases, 1 of the second division and 3 of the third division, the injection must have been perineuritic and not into the nerve trunk, as neither of the four developed any anaesthesia. although the pain disappeared completely. Case 35, as already related, relapsed after a little over two months, the pain reappearing in the lower jaw, when I again injected the foramen ovale, this time producing deep anaesthesia of the inferior dental and lingual nerves. In the remaining 18 cases anaesthesia of varying depth has been produced, as a rule the anaesthesia being deeper when the injection has been made into the foramen ovale than when the second division has been treated. The statement has been made by an American writer that the second division is never really anaesthetized by injecting to the foramen rotundum; this certainly is not true, for, of a total of 17 cases in which I have attempted to inject the superior maxillary nerve at the foramen rotundum, in 9 I succeeded in producing deep anaesthesia of the skin of the cheek and side of nose, inside of nostril, septum, upper lip, gum and hard palate, so that both tactile sensation and sensation to pin-prick were abolished over this area. In no case have I ever produced any anaesthesia over the area of skin above and outside the outer canthus of the eye, which is assigned in the anatomy books to the temporal branch of the superior maxillary. The limit of the anaesthesia I have obtained has always been sharply limited by the outer canthus (see Fig. 1). The temporo-malar branch is said to arise far back from the trunk in the spheno-maxillary fossa, as soon as the nerve leaves the foramen rotundum, and that is possibly the reason why it always escapes. In 4 other cases in which I have injected the second division,

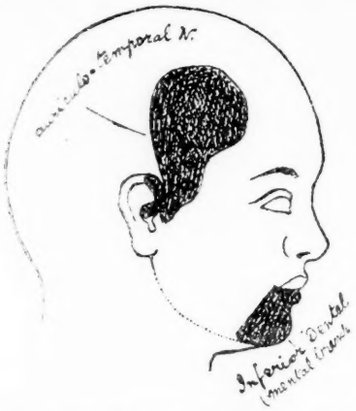

Fig. 2.—Chart of the cutaneous anaesthesia to all forms of sensation, in Cases VI, XI, XIII, XV, XIX, XXI, and XXIII, resulting from injection with alcohol of the foramen ovale. Cases VI, XI, XIX, XXI, and XXIII were injected under chloroform. The chart is diagrammatic for Case XI, in which the left side was affected. In addition to the area of skin shown, the whole of the lower gum to the middle line, the half of the tongue, and the inside of the lower part of the cheek were anaesthetic.

only partial anaesthesia was produced, pin-pricks appearing blunt, but tactile sensation being preserved, although the neuralgic pain was abolished in each. In two others injection of the infraorbital nerve produced complete anaesthesia of the cheek, and relief from all pain for four and a half months, but further injection to the foramen rotundum produced no anaesthesia of the gum and palate, and could not, therefore, have pierced the trunk of the superior maxillary. In another case, in which the pain was limited to the right second division, I attempted injection of the foramen rotundum on three occasions, at intervals of three or four days, without producing any anaesthesia at all, yet the third injection was followed by complete cessation of the pain which had scarcely left him for many months, and which had been present off and on for thirty years. In all these 16 cases the pain was completely abolished, although in 4 the analgesia produced was only partial, and in 1 there was no analgesia at all produced. In 1 case only of the 17 did I fail to relieve the pain, three injections failing to hit off the nerve, the pain, which was never very severe, remaining unaltered. In this case, slight diplopia in certain positions of the head was produced, and also some diminution in the acuity of the colour sense, indicating that the alcohol had been injected too far upwards and inwards towards the sphenoidal fissure and optic foramen. In another of the successful cases, transient slight diplopia for a week was produced, and also slight dilatation of the pupil, which persisted after the disappearance of the diplopia.

Very rarely will injection of the supraorbital notch require an anaesthetic. I have injected this nerve in eighteen patients altogether, seven of whom were cases of tic douloureux, and in only one was an anaesthetic necessary.

This treatment of injection of the nerve trunks with strong alcohol is, I am absolutely convinced, a sure cure for the pain in tic douloureux; not a permanent cure as with excision of the Gasserian ganglion, but giving complete relief from the pain for periods varying from two to five months, when the injection has been only perineuritic, and has produced no anaesthesia, to twelve or eighteen months, or even longer, in the more successful cases in which the injection has properly punctured the nerve at the deep foramen, producing complete anaesthesia of the anatomical distribution of the nerve. When the pain returns, as it is likely to do ultimately, the same process can be repeated, giving generally a longer period of immunity from pain than on the first occasion, and so on apparently indefinitely. With the needles I use, no scar is produced which can be detected after the lapse of ten days to a fortnight, even though as many as three injections may have been given at about the same spot within a few days. With proper precautions and strict attention to asepsis, there is absolutely no risk to life, and the only troubles I have met with were in three patients, two of whom had slight transient diplopia, one partial diminution of the colour sense on the one side, and in one case a certain degree of Eustachian deafness. Slight haematomata may occasionally develop after an injection, especially after injection of the foramen ovale, or of the infraorbital foramen, causing a bruised appearance lasting for a few days. Swelling of the cheek or eyelid always follows a superficial injection of the infraorbital foramen or supraorbital notch, closing the eye in the latter case for a day or two, the swelling not entirely disappearing for four or five days. Injection of the foramen rotundum is said to cause sometimes considerable swelling of the lower eyelid and chemosis of the conjunctiva, but I have not met with this in my own practice.

Dangers to be Guarded Against.

1. In injecting to the foramen rotundum, never inject at a greater depth than 5 cm. for an average-sized skull, or, a better guide, be careful not to sink the needle more than 7 mm. past the anterior edge of the external pterygoid plate. This precaution will prevent the optic nerve being injured. If the injection be made too horizontally, it will pass beneath the superior maxillary nerve and reach the spheno-palatine foramen, and will be felt in the nose. If directed too high, the sphenoidal fissure may be reached and the branches of the third nerve may be damaged, causing diplopia and dilatation of the pupil.

2. In making the injection for the foramen ovale, for the third division of the fifth nerve, if the needle is directed too low and too deeply, more than 4¾ cm., the pharynx wall or the Eustachian tube may be punctured; if too far back, the middle meningeal artery may be injured, and it is conceivable that if directed much too far back by a person with no experience, even the internal carotid artery or jugular vein might be injured.

As an instance of the boldness sometimes met with in the use of new treatments, I have known a doctor give a patient suffering from tic douloureux of the third division a hypodermic injection of alcohol deeply behind the angle of the lower jaw, because, as he said, "all the nerves ran there"! It is essential that any one wishing to use this method must first practise with a long needle upon a complete articulated skull, and then on the dead body in the *post-mortem* room, not once only, but many times.

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[1] Finkelnburg, *Verhand. des Congress f. Inn. Med.*, Wiesbaden, 1907. [2] Harris, *Proc. Roy. Soc. Med., Neurol. Sect.*, 1909, vol. ii. p. 77. [3] Harris, loc. cit., p. 81. [4] Schlösser, *Klin. Monatsbl. f. Augenheilk.*, Stuttg., 1903, xli, p. 244. [5] Schlösser, *Verhand. des Congress f. Inn. Med.*, Wiesbaden, 1907, xxiv, p. 49. [6] Sicard, *Rev. Neurologique*, 1907, p. 1157.

The American and Colonial Clubs, composed of Rhodes scholars at Oxford, have passed resolutions strongly approving the aims and objects of the Association for the International Interchange of Students. The first touring party is leaving Liverpool on June 21st for Canada and the United States.

ON CIRCULAR OR END-TO-END SUTURING OF ARTERIES:

BEING A MODIFICATION OF AN ALREADY PUBLISHED METHOD.

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THE following description of a method of end-to-end suture of arteries is an evolution of the method set forth in the book on blood-vessel surgery recently published for the author[1] by the Oxford Medical Press.

Further experience, partly in human surgery, partly in the course of research work in which blood-vessel surgery forms part of the procedure, has led to a greater perfection of the method. One or two instruments for the purpose must first be described.*

1. The "frame" (Fig. 1) takes the place of a very simple appliance termed a "measure" in the original publication of the method. In a steel frame slides a flat plate of steel engraved on one side with two scales, the upper one being 1½ cm., graduated in millimetres, the lower being the same length graduated in 1½ mm. Any number read off on the larger scale is equal to one and a half times the same number on the smaller scale. The use for this will appear hereafter. At one end of the instrument is a handle, and at each end of the fenestrated portion is riveted a small spring clip, under each side of which can be fixed and held a suture.

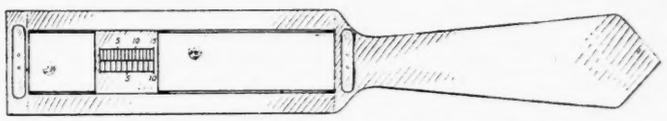

Fig. 1.—The "frame." Half size.

Fig. 2.—The needle. Actual size.

2. A curved needle in a handle (Fig. 2). The eye is not far from the point; the needle is removable from the handle, and, if damaged, or if it becomes unthreaded during the operation, it can readily be replaced by a new one, or by one previously threaded.

3. Clamps required for the temporary control of the blood stream may readily be made by covering both blades of a small spring clamp with rubber tubing; the tubing should be reflected over itself at the heel end of one blade, and the point of the other, making those parts of the blades double covered (Fig. 3). The middle portion of the blades is used to clamp the vessel; the extra layer of rubber at the ends serves to prevent injurious pressure on its wall. These clamps are better if the blades outside the rubber are thinly covered with gauze, which prevents the divided vessel from retracting through the blades. (The gauze on the blades is not shown in the drawing.)

Fig. 3.—The clamp for temporary control of the blood stream. Actual size.

The suture material used is silk, for a vessel as large as the human femoral artery, No. 0000; for one the size of the radial about half that thickness. In addition, some fine chromicized catgut, No. 1 or No. 2, according to the size of the vessel, is required. The silk is used from the reel, and it is essential to thread the needle from the convexity of its curve towards the concavity. The catgut should for convenience be in straight lengths, that is,

* These two instruments have been made for me by Mr. C. F. Palmer, 6, Upper Tulse Hill, London.

never have been wound on a reel. I use an apparatus for sterilizing silk or catgut by superheated alcohol vapour, designed by Föderl, and made by Kutill of Vienna. The material is thus efficiently sterilized, and owing to the volatility of the alcohol, is dry when required for use, and free from any foreign substance.

The suture method is an adaptation of the quill suture, the quill being represented by the chromic gut. The desideratum is to bring two endothelial surfaces together, yet to have a suture that penetrates every coat of the vessel but causes a minimum of bare suture material to impinge on the lumen.

The following detailed description applies to the simple experimental operation of division, and end-to-end union of an artery.

Every preparation being made, and the operator completely equipped for aseptic operating, the vessel concerned is exposed freely, and separated from its surrounding tissues for a length of 3 to 4 cm. The frame is then slipped beneath the vessel and its diameter under the arterial pressure noted on the smaller scale. The vessel is then cleanly divided, after having been temporarily clamped above and below the proposed point of union. If it retracts within its adventitia the superfluous amount of the latter should be cut away even with the divided end of the vessel.

The first suture is then inserted as follows, and attention must be given as to the direction in which the needle should be passed. The needle is passed from without inwards on the deep aspect of one of the divided ends about 1 mm. from its edge, and from within outwards at a corresponding point on the other; the loop in the concavity of the needle is seized with fine dissecting forceps, and the needle withdrawn; through the loop is then drawn a thread of the chromic gut, and a thread of silk; the loop is then drawn tight, and the two ends tied over another thread of chromic gut. The end attached to the needle must be above, the loose end below the gut. The ends are left long, the needle having been previously slid along the silk towards the reel, and being thus left still threaded. The long ends of the tied suture, and the thread of silk through its loop on the other side form two traction

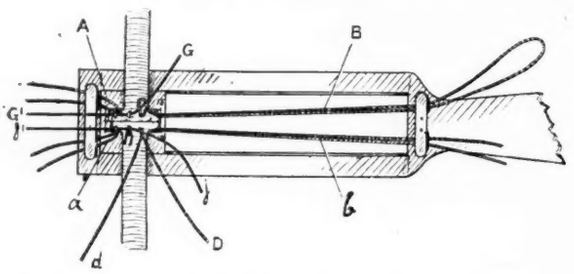

Fig. 4.—The vessels fixed in the "frame," stretched by traction threads, and partly sutured on one side. For the sake of clearness, only two sutures are shown, one of them tied, where three ought to be inserted for a vessel of this size. (Half size.) A, *a*, First traction threads. B, *b*, Second traction threads. G, G^1, *j*, *j*^{1}, "Quills" of chromicized catgut. D, Upper end of the last suture inserted, but not tied. *d*, Lower end of the last suture inserted, but not tied.

threads A and *a* (Fig. 4) on the deep aspect, one for each piece of the divided vessel.

The needle is passed for the second time in an exactly similar manner to the first, but on the superficial aspect of the vessel, that is, diametrically opposite to the first, but the loop of silk is drawn far through the vessel walls, and the suture is not tied for the present; the loop of this suture on the one hand, and the long ends on the other form the two traction threads, B and *b*, for the superficial aspect of the vessel, which is now ready to be fixed in the frame.

The traction threads of the *first* suture are then fixed in the clips of the distal end of the "frame," which is slipped underneath the vessel at the point of union, those of the *second* suture being fixed in like manner in the clips at the proximal end, the vessel itself being as near the distal end as possible. (See Fig. 3.) Traction is then made on the vessel wall by means of these threads, so that the part between the points where the threads pierce it is stretched to the same number on the large scale as was read on the small scale before division. The vessel is now ready to be sutured, and is not removed from the frame till the suture is practically completed. The stretching in the way indicated ensures the size of the vessel at the suture line being the same as it was before division, so that no narrowing should be present at the point of union. The sutures already inserted, after serving their purpose as traction threads, take their place also as permanent sutures when all is completed.

Sutures are now laid in succession on the exposed side of the vessel beginning 1½ mm. from the first suture, and with a space of 1½ mm. between each two sutures.

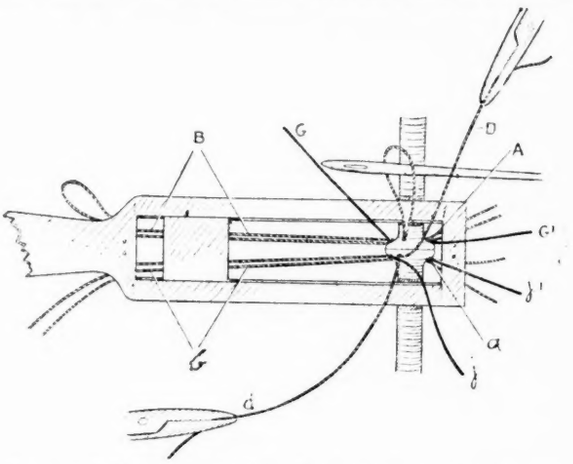

Fig. 5.—The "frame" reversed. The first suture on the reverse side inserted, its loop threaded on a probe and the loose ends distinguished into upper D, and lower *d*, in respect of the chromicized catgut *j*. Lettering as in Fig. 4. Half size.

The loops are successively threaded on a probe, and the untied ends are caught temporarily in two pairs of forceps, the unattached end (when passing the needle), being designated the lower *d*, the end attached to the reel the upper D. (See Fig. 5.) When the sutures for the one side are all laid, the proper piece of chromic gut G (Fig. 4), is threaded on the probe and drawn through the loops, being finally passed also between the two threads of the corresponding traction loop B (Fig. 4). The loops are then drawn tight, and tied over the second strand of chromic gut, *j*, in the same order in which they were laid, each suture being cut short when tied, and the chromic gut *j* being drawn between the two threads of its corresponding traction loop *b*. The sliding plate is then slid to the proximal end of the frame, which itself is turned over around the blood vessel as an axis, thus bringing the other side of the vessel upwards, and exposed for suturing.

It is in order to facilitate the reversal of the "frame" that the first traction threads A and *a* are fixed to the

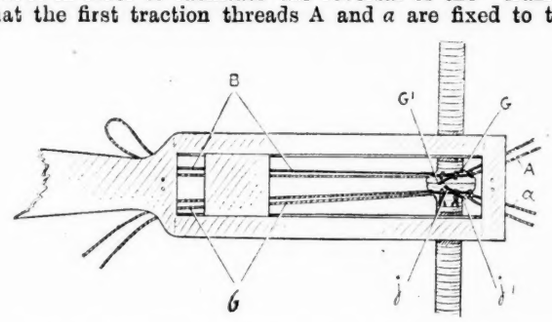

Fig. 6.—The last suture on the reverse side, its loop enclosing both ends G G^1 of the one catgut "quill," and its ends tied over both ends *j j*^{1} of the other. Lettering as in Figs. 4 and 5. Half size.

distal end of the frame, and that the vessel is fixed as near that end as possible.

By making the first traction thread on the deep aspect of the vessel the latter is only turned on its own axis to an extent of 90 degrees, first one way, then the other, an amount of torsion insufficient to injure the vessel wall.

The second row of sutures is now laid exactly as the first, and tied in the same way, except that the last one to be tied has both ends G G^1 of the one catgut strand through its loop, and both ends *j j*^{1} of the other tied under it (Fig. 6).

The loop of the second traction suture B *b* is now loosened from its clip, drawn tight, the ends tied and cut away. The first traction threads are cut, and releasing the vessel thereby from the frame, the suture is complete.

On loosening the temporary clamps, there is sometimes a little oozing at the suture line, which stops in a minute or two under gentle pressure with gauze between the fingers. The reason for laying and tying the sutures in a definite order is that if one breaks in the tying it cannot be replaced if the sutures on both sides of it have been already tied.

This method of end-to-end union of a divided vessel differs in some small but important details from that previously published by me.

The "frame" is a greater convenience as compared with the "measure" of the original method, in that the vessel once fixed is not removed till the suture is complete, the other side being exposed by simply sliding back the plate, and reversing the frame as described.

The main difference is that, in the original directions, the second suture inserted, which forms the traction threads B *b* during the suturing of the two sides of the stretched vessel, is directed to be tied last of all, as in this method, but the ends of the chromic gut "quill" G G^1 j j^1 were originally directed to be tied in this suture after removal from the "measure" (which there takes the place of the "frame"), while now the two ends of the "quills" G G^1 j j^1 are tied in the last of the sutures on the reverse side of the "frame," and so the diameter of the supporting "quills," which determines that of the finished union, is fixed before the traction is released and the "frame" removed. The traction suture B *b* is then tied, the section of vessel wall concerned being already held stretched, whereas in the former method that section of wall was free to contract, the traction being released, and consequently the contraction led to a slight narrowing at the suture line.

1. The course of the suture in its passage through the walls of the apposed ends of the vessel is to be noted. If the details above described as to threading the needle and as to the distinction of the ends of the suture before tying into upper D (Fig. 5) and lower *d*, with respect to the strand of catgut *j* over which they are tied, the suture will invariably take the form of the figure 8, the space in each

Fig. 7.—Shows diagrammatically the figure of 8 shape of the suture *in situ*.

half of the figure being occupied by the chromic catgut, while the cross in the centre is where the suture pierces the vessel walls (Fig. 7). There is thus no possibility of the suture cutting out on each side to the width of the thickness of the chromicized catgut, and the hole through which it passes in the vessel walls is minimal.

2. The catgut itself is a powerful aid against any tendency of the suture to cut out, by giving a more extended hold on the vessel wall. It acts also as a pair of splints, keeping the two endothelial surfaces in contact between the suture points.

3. Fewer sutures are required than under any other suture method, and so fewer needle punctures, and less consequent weakening of the wall of the vessel.

4. Nothing but an endothelial lining is exposed to the blood stream, even the sutures, though perforating all coats, being practically prevented from contact with blood.

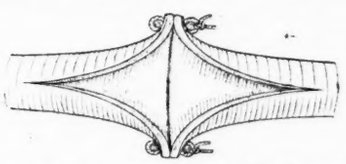

Fig. 8.—Diagrammatic representation of the internal appearance of the suture line in an artery which has been united by the method described.

The inner aspect of the vessel after suture is shown diagrammatically in Fig. 8.

5. If the observations of measurements of the size of the vessel when full of blood, and when stretched in this "frame," are correctly made, there is a mathematical certainty of having the size of the vessel at the suture line that of ordinary distension under the pressure of the blood.

6. As I have shown in the book referred to, when healing has occurred no suture material remains *in situ* in the vessel wall, the catgut being eventually absorbed, and the silk completely outside the vessel; in the scar itself new elastic and muscular fibres form, and there is a strong probability of a complete *restitutio ad integrum* being established.

I have repeatedly united by this method divided vessels of a diameter when distended with blood of not more than 3 mm. Rarely can any necessity arise in human surgery for suture of a smaller vessel.

The method is equally applicable to end-to end suture of veins, though it is specially designed to furnish a safe suture under conditions of pressure such as exist in arteries.

A suture on the same principle is also applicable to the repair of wounds in the wall of a vessel not amounting to complete division. If the wound were longitudinal or slightly oblique the "frame" would not be required; if very oblique or transverse, it might be wiser to complete the division and make a union as above described.

It would then, of course, be necessary to observe the original diameter of the vessel under the arterial pressure by temporarily controlling its proximal end and laying it across the graduated plate of the "frame" when filled out with blood.

REFERENCE.

[1] *Suture of Arteries.* By E. Archibald Smith. Oxford Medical Press. 1909.

A NOTE UPON THE MECHANICAL EFFECTS OF A MASSIVE RIGHT-SIDED PLEURAL EFFUSION.

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(From the Anatomical Laboratory of the College.)

THE observations here recorded were made on a dissecting room subject preserved by the double vascular injection method. The arteries were injected under low pressure with a corrosive-carbolic-glycerine preservative, the venae cavae and their tributaries to the first valves with 15 per cent. formalin.

This method of preservation secures that the majority of the tissues retain an almost lifelike consistency, whereas the heart, liver, and kidneys are firmly fixed and the lungs partially fixed.

The body upon which the observations were made was that of an old woman, whose age was returned as 67. Before dissection was commenced the right shoulder was seen to be considerably higher than the left. This elevation is shown in the photograph. When the thorax was opened, the right pleural cavity was found full of clear fluid. The condition of the (partially fixed) right lung is shown in the figure. It contained air, but was not completely expanded.

In connexion with the displacement of the thoracic viscera the most striking fact was that the inferior vena cava and the pericardial attachment of the diaphragm had moored the mediastinal structures as efficiently inferiorly to and through the diaphragm as the great vessels, trachea, and oesophagus moor them superiorly to the margins of the thoracic inlet. As a result the displacement of the mediastinal structures to the left was maximal at the level of the lung roots and minimal at the levels of the thoracic inlet and diaphragm.

The diaphragmatic pleural recesses were widely opened up, and the convexity of the right cupola of the diaphragm was in part reversed, so that it looked downward instead of upward. The posterior part of the mediastinal pleura was bulged somewhat to the left of the middle line, but not sufficiently to clear the vertebral bodies.

The heart was displaced, the apex having passed downwards and slightly inwards. The mechanism of this displacement was: the right margin of the inferior or diaphragmatic surface of the heart was held almost im-

movably by the inferior vena cava. As a result the pressure from the right was only able to displace to the left the upper part of the normal vertical axis of the heart, so that the apex was forced to descend. An adequate description of the cardiac displacement would be that the heart was rotated clockwise through an angle of 30 degrees on an antero-posterior axis which passed through the caval opening in the diaphragm. The photograph shows only a small part of this rotation, for the removal of the fluid withdrew the displacing force and the natural elasticity of the tissues effected a partial rectification. The full extent of the downward rotation of the apex can be accurately gauged from the inclination of the upper surface of the left lobe of the liver against which it was firmly pressed, the diaphragm alone intervening.

The margo acutus of the heart was deeply notched at about its middle. The causation of this notching is considered later in connexion with the distortion of the liver. The notch was deep enough seriously to affect the capacity of the right ventricle.

The right auricle was almost obliterated, its cavity being represented by a mere slit. The superior vena cava was compressed and extended. Its lumen apparently was much reduced. The short ntrapericardial part of the inferior vena cava was compressed, extended, and sharply bent from right to left. It was difficult to understand how any appreciable quantity of blood could have entered the auricle. The left auricle was pulled out on its right side, and the right pulmonary veins were elongated.

As a whole, the heart was flattened on its right side. This flattening is shown in the photograph. The pericardium was healthy.

The vertical curvature of the aorta was of shorter radius than usual; this was clearly due to the rotation of the heart. The horizontal curvature was considerably flattened.

To show the flattening on the right side of the heart, the slope of the upper surface of the left lobe of the liver and the deep depression on the upper surface of the right lobe.

The liver was depressed but not rotated. The upper surface of its right lobe was deeply concave. This concavity was directly due to the transmission of the pressure of the pleural fluid through the diaphragm. The upper surface of the left lobe sloped steeply from a point near the middle line of the body downwards and to the left. This depression was due to the forced downward rotation of the apex of the heart. The central part of the liver held by its diaphragmatic attachment, the falciform ligament, and the hepatic veins, had resisted the general downward movement, if, indeed, it were not somewhat elevated. It appeared almost to have been squeezed upwards as a result of the action on the liver of three forces—the downward pressure of the fluid on the right, the downward pressure of the heart apex on the left, and the upward counter pressure of the intestines below. Be this as it may, the central part of the liver formed a prominent projecting rounded mass, against which the margo acutus was compressed. This was the cause of the notch which has already been described as seriously affecting the capacity of the right ventricle.

To ordinary clinical methods of examination the downward displacement of the liver must have been in some measure masked, for the distended transverse colon lay in front of the lower third of the organ.

The descent of the liver had caused a considerable downward displacement of the right kidney. The descent of the diaphragm had carried the right suprarenal downwards. These displacements must of necessity have caused considerable traction upon the renal and suprarenal plexuses of the sympathetic nervous system.

To generalize from one example is impossible, but it is interesting briefly to compare the actual observations made in this case under the most favourable conditions upon hardened organs with some parts of a standard description of the mechanical effects of massive right-sided pleural effusion such as that given by Dr. West in his book, *Diseases of the Organs of Respiration*. He writes:

> With effusion on the right side, the pleura extends across the sternum . . . the line of dullness being continued through the nipple, or above and outside it, to the spot where the apex of the heart is felt beating. . . .

The photograph shows that in this case the line of dullness would have followed the line indicated, but that the dullness would not have been due to an extended right pleura containing fluid, but to the displaced mediastinal structures pushing forward and to the left behind the emptied anterior part of the left pleural cavity.

The description continues:

> The most marked change on this (the right) side is in the position of the liver, which is greatly displaced and curiously rotated. The lower border reaches down as far as the border of the umbilicus . . . ; the notch is then usually close under the left costal arch and the gall bladder in the middle line.

The downward displacement of the liver certainly occurred in this case, but there was no rotation. In view of the almost necessary descent of the apex of the heart, it is difficult to believe that such rotation is the rule. The feeling of a notch near the left costal margin might be simulated by palpation of the depressed left lateral border of the organ.

In Dr. West's description the possibility of a rotatory displacement of the heart is not discussed. Compression of the right auricle and ventricle is somewhat lightly dismissed, and the possibility of kinking of the vena cava inferior is categorically denied. It existed in this case, and certainly looked sufficiently effective to explain a sudden death—a possibility which was originally suggested by Bartels. It is necessary, however, to remember in this connexion the compression of the right auricle and ventricle and the traction upon the renal and suprarenal sympathetic nervous plexuses.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CARCINOMA OF RECTUM APPEARING SIMULTANEOUSLY IN HUSBAND AND WIFE.[1]

IN the family history on the husband's side there is nothing of importance. On the wife's side the history is as follows:

Father died from cancer of the oesophagus;
Brother died from malignant tumour of brain;
Brother died from malignant disease in neck;
Maternal great-aunt died from cancer of breast;
Maternal aunt died from cancer in abdomen;
Maternal aunt died from cancer of breast;
Second cousin (female) died from cancer in abdomen;
First cousin (female) has at the present time a breast tumour, the nature of which has not yet been determined;

so that, on the wife's side, seven relatives died from malignant disease.

The patients have been married thirty-four years. In the case of the husband, a very stout man, aged 63, the first symptoms—evacuations many times a day of small amounts of liquid faeces, with small quantities of blood—commenced in April, 1909. Six months later (October, 1909) he was examined by Mr. Ernest Miles, who found an inoperable growth high up in the rectum. On November 9th I performed left inguinal colostomy. All the tissues were very fatty and friable. The mesentery only just permitted the bowel to be fixed outside the abdomen. At the present time (April, 1910), five months after colostomy and one year from the onset of symptoms, the patient appears to have taken a new lease of life. A daily morning enema empties the bowel, from which neither faeces nor flatus escape during the rest of the twenty-four hours. There is no pain, discharge of blood from the rectum has almost ceased, and the patient feels so well that he is actively carrying on his work, which involves much standing and talking.

In the case of the wife, a thin, delicate multipara, aged 60, the symptoms, similar to those of the husband, commenced in May, 1909. Ten months later, March, 1910 (some one having suggested that the disease was uterine), the patient was examined by Dr. F. H. Champneys, who found nothing uterine, but in the rectum a large growth blocking the lumen 3 in. from the anus. On April 8th, 1910, I performed left inguinal colostomy, fixing the portion of bowel immediately below the splenic flexure.

[Seen two months after operation the patient is much less weak and the rectal discharge is very little. The high colostomy appears to have prevented prolapse, while the new opening functions as well as that of the husband.]

C. HAMILTON WHITEFORD, M.R.C.S., L.R.C.P.

Plymouth.

[1] Read before the South-Western Branch of the British Medical Association.

CARBON DIOXIDE SNOW.

IN January of this year I contributed an article to the JOURNAL on the "therapeutic value of carbon dioxide snow" in the treatment of vascular naevi, moles, etc. Since then I have had so many letters from doctors requesting further details with regard to the method of obtaining the snow and recounting the difficulties they have experienced in carrying out the treatment that I would be grateful if you would give me space to amplify my former description. The method of obtaining the snow is perfectly simple. In the department under my care at Charing Cross Hospital the liquid carbon dioxide from which the snow is made is contained in small iron cylinders of 7 lb. capacity. These are obtained from the British Oxygen Company, and filled at the London Carbonic Acid Gas Works. This size of cylinder was chosen as it is easily lifted; it is fixed vertically in a metal stand with castors. The nozzle of the cylinder is horizontal, and the key is at the top. In order that the cylinder may be used in the vertical position, it is, of course, necessary to have it fitted with a central tube reaching down nearly to the bottom.

The snow is formed by allowing a jet of the carbon dioxide to play into a piece of baize folded up in the form of a bag or tube by rolling it round a ruler. The roll of baize is held over the nozzle by the left hand, on which a glove should be worn, while the right hand controls the key and the escape of the carbon dioxide. The key should be turned slowly, and the carbon dioxide allowed to escape into the baize tube with medium force, the tube being so held that practically none of the carbon dioxide is allowed to pass through it. After a short experience it is possible to tell by the noise made by the escape of the carbon dioxide the force at which the maximum deposit of snow will be obtained. The length of time in which the carbon dioxide is permitted to play into the baize depends on the amount of snow required, and varies from a few seconds to a minute. The jet is then turned off and the baize spread out on a table, when the central part is found to be thickly coated with the snow.

This is transferred to specula-like applicators, by means of a spoon, and the snow is tightly compressed by a closely fitting plunger into the applicator, which is placed on a smooth surface. These applicators are composed of vulcanite, and vary from ¼ in. to 1 in. in diameter. They were made for the hospital to my design by Messrs. S. Maw, Son and Sons. No hard and fast rules can be laid down with regard to the exact time of application or the pressure which should be exerted, for these are matters of experience, and vary according to the type of lesion and its situation on the skin. An average exposure for a raised angiomatous naevus is about thirty seconds, for a wart a minute, or more if it be situated where the skin is thick, as on the palm of the hand. As a general rule, it is better to do too little than too much at a time, and to repeat the procedure if necessary when the reaction has subsided. A good working rule with regard to the pressure is to apply just sufficient to produce a slight cupping of the frozen area when the applicator is removed.

Charing Cross Hospital. J. M. H. MACLEOD.

TWO CASES OF RHINORRHOEA.

THE widow of a farmer, aged 76, consulted me in 1875 about the constant dripping of clear fluid from her nose. Later she lost power in her legs, and died with the signs of cerebro-spinal degeneration. The fluid dripped so constantly that she could not prevent it finding its way into her food. It was not tested for sugar.

The second case was of the same kind, occurring in a middle-aged gentleman, whose brain and cord were slowly degenerating. After many years of glycosuria and consequent fibrosis of the kidneys he lost control of his legs, and finally of his hands and tongue. He died in a comatose state. His nasal fluid was clear, colourless, and devoid of sugar. Of course no treatment controlled this discharge.

Castle Cary. CAREY COOMBS, M.D.

PUERPERAL ECLAMPSIA: RECOVERY.

I SAW for the first time Mrs. C., aged 18, at 7.30 p.m. on April 11th. She was in a very severe fit, and had been almost continuously in them since 11 a.m., when she had the first. She was six months pregnant, and was apparently quite well until she had the first fit. When 11 years old she had typhoid fever and acute nephritis. She had neither had special diet nor, in fact, any treatment during her pregnancy. With great difficulty I passed a catheter. The urine was loaded with albumen. I decided to waste no time with the conventional treatment, but injected hypodermically ʒij of liquid extract of ergot, and returned home. At 10 p.m. Dr. Edward Nason kindly saw the case with me, and agreed that the only means of saving life was to empty the uterus, and even then the prognosis was very bad. Dr. Nason administered chloroform. I was greatly relieved to find that the ergot had done good work, for the os admitted my little finger. In fifteen minutes I had introduced the largest Hegar's dilator, and, finding a vertex presentation, turned and brought down the feet. I had great difficulty in extracting the head.

The patient passed a very restless night and had to be held down in bed. She had a very severe fit at 10 a.m., but this was the last. From 3 a.m. onwards during the whole of the day I kept her under the influence of morphine. She passed no urine from 11 a.m. on the Monday until 7 p.m. on April 12th, and then only a small quantity. On the evening of April 11th I only drew off a very small quantity. She quickly improved and was able to take fish on the sixth day, and regarded it as a great hardship to wait so long for it. On the tenth day she was

up and dressed. When last seen, three weeks after the first fit, she was apparently quite well and doing her work.

The interesting points about this case are: (1) The early onset of the fits, only six months pregnant. (2) The discarding of the usual attempts to arrest the fits. (3) The action of the ergot, which caused partial dilatation of the os. (4) The recovery of the patient.

Nuneaton. J. VINCENT SHAW, M.B., B.Ch.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

THE INFIRMARY, SUNDERLAND.

(Notes by Z. M. HAMILTON ROSS, M.B., Ch.B., Resident Medical Officer.)

THE following record of a week's operative work at a provincial hospital may be interesting as showing the variety and extent of the work done at such institutions, even when situated near a large and important centre.

During the week ending January 15th twenty-four major operations were performed by members of the honorary surgical staff, besides twenty-seven minor operations performed by the resident staff.

Included in the series are acute mastoiditis (3), for acute appendicitis (6), for quiescent appendicitis (1), for ruptured gastric ulcer (2), for pyloric disease (1), for intestinal obstruction (1), for cholecystitis (1).

One of the patients operated upon for mastoid disease died of meningitis the following day, and the patient with cholecystitis died of post-operative shock. All the others have made excellent recoveries.

Some of the cases are worthy of special mention. Perhaps the most uncommon was that of a man who was found to have considerable limitation of movement in the elbow-joint. A loose body could be palpated anteriorly, and a skiagram showed a shadow in this position, with evidence also of irregularities posteriorly. By an anterior incision the body in front was easily removed, and was found to consist of cancellous bony tissue covered with cartilage. It measured about 1 in. by $\frac{3}{4}$ in. by $\frac{1}{4}$ in. I can find no similar case on record.

The case of pyloric disease presented most of the signs and symptoms of perforated duodenal ulcer, but at the operation no perforation could be found. The pylorus was adherent to the surrounding structures, and was partially covered with lymph. Gastro-enterostomy was performed, and whereas previous to operation the patient suffered much, he has since been on ordinary diet without any ill effects.

One of the cases of ruptured gastric ulcer presented considerable difficulty in diagnosis. The question of perforation was discussed, but it was finally decided to treat the case as one of appendicular trouble. A healthy appendix was found. A median incision was then made, and the perforation was discovered and sutured. Although the patient had delirium tremens for two days after the operation, he eventually made an excellent recovery.

Another case of interest was a boy aged 11 years, sent in as a case of intussusception. There was a tense swelling, about 2 in. in diameter, in the left iliac region. It was entirely limited to the left side, and proved to be a pelvic appendicular abscess.

The intestinal obstruction occurred in a patient upon whom Wertheim's hysterectomy had been performed in June. Obstruction was due to the adhesion of the small intestine to the wound, and was relieved by enteroplasty. This incident shows the importance of attending to the position of the omentum when the patient has been placed in the Trendelenburg position, before closure of the abdominal wound.

The following week among the operations performed were mastoidectomy (2), abdominal hysterectomy (1), for ruptured duodenal ulcer (1), lateral anastomosis (1), and appendectomy (3).

I am indebted to the honorary surgical staff for permission to record these cases.

Reports of Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Wednesday, June 1st, 1910.

Dr. C. W. MACGILLIVRAY, Vice-President, in the Chair.

Artificially-prepared Hypnotics.

DR. F. D. BOYD, introducing a discussion on artificially-prepared hypnotics, said that of the milder members of the group the best were amylene hydrate and chloralamide, which should be given dissolved in alcohol. In the medium group paraldehyde stood out as the best. Its nauseous taste was a disadvantage, but this again obviated the danger of a drug habit. It was specially good in pneumonia, except in the alcoholic form. It acted well per rectum in 2 to 4 drachm doses, well diluted. Sulphonal was toxic and cumulative, and should be excised from the *Pharmacopoeia*. Bromural was sometimes effective in emotional excitement. Of the powerful hypnotics, chloral was seldom used now. Veronal was best given in soup, the minimal dose being 3 to 5 grains. It had occasionally unpleasant sequelae—general erythema, vertigo, even ataxia and peripheral neuritis. Trional should be banished along with sulphonal. A good general rule was never to employ these hypnotics undissolved. It was with their use in tabloid form that unpleasant and dangerous effects were generally associated. It was also wise to ring the changes in prolonged use of hypnotics, and never to use a single drug for long. He was in favour of restrictions on the sale of those not in the *Pharmacopoeia*. Dr. CLOUSTON said the object in giving hypnotics might be to produce sleep, to act as a nerve sedative, or as a muscular quietus. He believed in the virtue of combination of hypnotics. Sulphonal and paraldehyde made a valuable combination. Potassium bromide was also a good adjuvant to sulphonal, and the combination gave sleep, followed by a quiet day. In his belief, it was the means of keeping many old people out of the asylum. He had never found sulphonal toxic, and disagreed entirely with Dr. Boyd's condemnation of it. Dr. ROBERTSON (Morningside Asylum) extolled the combination of potassium bromide and paraldehyde. He agreed with Dr. Boyd in his condemnation of sulphonal, having met with toxic effects from its use. He had also had unpleasant results with veronal and trional. Dr. AFFLECK said he had found potassium bromide with tincture of hops most useful for cases of simple insomnia; while chloral and potassium bromide were valuable in the delirium of fever. Dr. SILLAR said that in giving hypnotics two principles were important, that of combination and solubility. Alcohol was not only a good solvent, but was also useful in its diaphoretic action on the skin. In this connexion a glass of beer could be compared with the tincture of hops mentioned by Dr. Affleck, both in its constitution and sedative effect. Dr. RITCHIE said that in cases of pain the only efficient hypnotic was an opiate. In the sleeplessness of old age or debility, a drink of warm soup was often effective. For many years he had avoided using sulphonal. Dr. LUNDIE said that in cases of overwork, strain and anxiety, phosphorus given steadily in small doses for some time was a "curative hypnotic."

The Treatment of Lupus Carcinoma.

Dr. NORMAN WALKER said this complication of lupus by carcinoma had been increasing in frequency of late years, and was probably associated with the increasing frequency of *x*-ray treatment. After describing a number of cases of his own, he said the features of this form of malignant growth were its superficial character and the absence of involvement of neighbouring glands or more distant metastasis. The usual treatment was excision, but it was almost invariably followed by recurrence. This had happened in nearly all his early cases, and also in a series recently published by Professor Wild. Lately he (Dr. Walker) had practised vigorous erasion under local anaesthesia, careful stopping of bleeding, and application of a powerful caustic, such as fused chromic acid, or arsenious acid to the raw surface. With this treatment his results had been much better. Dr. ALLAN JAMIESON said the common site of lupus carcinoma on the face

suggested that exposure was a factor, and recalled Unna's cases of sailors' cancer. *X* rays should be used in lupus on the face with caution, except on the nose, where this complication did not occur. He endorsed the value of the erasion and caustic treatment.

The Cammidge Reaction in Abdominal Disease.

Dr. W. RUSSELL gave an analysis of results obtained from 78 cases, chiefly of abdominal disease. In a few acute conditions the Cammidge reaction was markedly positive in an acute necrotic pancreatitis, but also in a case of malignant disease of stomach, where *post mortem* the liver was infiltrated with new growth and the pancreas was healthy. In a series of hepatic conditions the reaction was positive in a number of cases of cirrhosis, gall stones, and catarrh. In a group where the symptoms were vaguely gastro-intestinal there were twenty-six positive results and twenty-nine negative. And, again, seven observations on members of the staff, who all appeared to be healthy, gave six positive results and one negative. These results negatived the idea that the reaction was a "pancreatic" one, for if it appeared when the pancreas was involved, it also was present when it was healthy. Further, the substance that gave the reaction was of carbohydrate origin, while the pancreatic ferments were of proteid nature. This pentose which gave the urinary reaction was probably an index of carbohydrate digestion in the intestine, but there was no evidence that it specifically incriminated the pancreas or any other abdominal organ any more than did the presence and variations of urea, uric acid, and ethereal sulphates in the urine.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Tuesday, May 24th, 1910.

Professor W. BEVAN-LEWIS, M.Sc., in the Chair.

Insanity and Conduct.

DR. CHARLES MERCIER, in a paper on insanity as disorder of conduct, said that he had been surprised to find at a recent meeting of a committee of the association that no one supported his suggestion that the study of conduct should form an item in the proposed syllabus of subjects for a diploma in psychiatry. He had supposed that the doctrine that insanity and disorder of the mind were convertible terms had been exploded twenty-five years ago. He proceeded to instance cases of claustrophobia, agoraphobia, and giddiness as disorders of mind that were not insanity, and cases of insanity in which disorder of mind was irrelevant. In one case, on being introduced to a lady, she spat in his face. He sat down at once and certified her to be insane without interchanging a word with her. He knew nothing of the state of her mind, nor did it interest him. If the mental condition of a patient was given in a certificate of lunacy, the certificate did not give facts observed, for the mental condition could not be observed; it could only be inferred from conduct. Nor was the mental state important, except as suggesting tendencies in conduct. Since in every case the state of the mind had to be inferred from conduct and then conduct inferred back again from mind, why not simplify the operation and look to conduct as of primary importance? The syllabus stated that it was important for the student of insanity to test the patient's reaction-time, to discover his aesthetic sentiments, to examine his estimation of time and space, to know his response to the ergograph; but whether he was suicidal or dangerous, whether he could earn his living, whether he tore up his clothes or was indecent, whether he tried to murder his wife and children, were apparently matters of profound indifference to the alienist. That was the lesson to be learnt from the syllabus. That was what students are taught by it. He submitted that conduct was all-important in insanity, that it ought to be studied, and ought to be studied systematically.

Dr. G. SAVAGE said that certain certificates which he had signed had been wide of the mark concerning facts as observed by himself. A lady might have her powers of calculation and reasoning intact, but if she left home and did many strange things indicating a tendency to lust, one would recognize symptoms indicating insanity. Because a man lost a certain kind of memory he should not be regarded as insane; a man might be very mad and yet be right in his conduct. Even the committal of a crime did not in itself constitute insanity. Some teachers were always insisting on the danger of the definite, and certainly one must not be governed by definitions which were too rigid. He was much indebted to Dr. Mercier for insisting that insanity must be looked at from the practical rather than the purely scientific point of view.

Dr. W. H. B. STODDART said the point at which he parted company from Dr. Mercier was that he (Dr. Stoddart) regarded conduct as a part of mind. The difficulty was that a line had to be drawn between conduct and what Dr. Mercier called mind. Conduct appeared to be something muscular, but he did not think one could stop at the muscles and exclude the nervous system or the skull's contents. It would not be easy to say where study of conduct was to leave off and the study of psychology begin.

Dr. R. H. STEEN remarked that Dr. Mercier said when conduct was disordered there was disorder of mind, and he, Dr. Steen, wished to know whether the converse was true. He instanced the case of a girl against whom no disorder of conduct could be alleged, yet who was certified as a private patient, and at the end of a year the certificate was renewed. What was the superintendent of an institution to do with such a case?

Dr. T. DRAPES said he thought Dr. Mercier's remarks would have been apt if he had used the word "certifiable" before "insanity." One was taught that the mind consisted of three departments—intellect, emotion, and will—and that insanity might show itself by disorder of any of these, or of all three together. If Dr. Mercier's views were fully carried out, the occupation of the alienist would be gone, because the man in the street would be considered as good a judge as to whether a man was or was not sane as the skilled alienist. But the alienist was required to give some explanation of the man's conduct, and that could only be done by a reference to the man's condition.

Dr. A. R. URQUHART complained that the paper just read was not that of the physician, because it did not reflect the physician's point of view. If insanity was merely a disorder of conduct, then the question was rather a legal than a medical one, though, of course, the alienist had to address himself to legal as well as medical matters. Insanity he regarded as a disease of the brain which affected the actions of the body; and the alienist had to inquire what was the reason of the disorder of mind, and what could be done to restore the mind to the normal condition.

Dr. J. F. DIXON asked whether Dr. Mercier wished insanity to be regarded merely as a disorder of conduct without any reference to the supposed state of mind which led up to that disordered conduct. If insanity was merely disordered conduct, how could accommodation be provided in this country for all the cases of insanity?

Dr. BEDFORD PIERCE said he understood the thesis to be that there was no insanity without disorder of conduct. If that were so, there was no knowledge of insanity without disordered conduct. How did Dr. Mercier speak of the person troubled with obsessions to murder? A gentleman came under his charge voluntarily because he wanted to be protected against himself, as he had an obsession that he would murder his children. His conduct in seeking such protection, however, was not insane.

Dr. R. L. LANGDON-DOWN asked whether one could wholly infer the mental condition from the conduct. Conduct was the text by which the mind was read, and the text needed to be carefully studied so as to know the state of the mind.

Dr. H. RAYNER narrated a case in which a surgeon did a very strange act to himself, and in which a certificate of insanity was not signed, as the alienists concerned did not think there was a likelihood of his doing a similar thing again.

The PRESIDENT said he understood Dr. Mercier to controvert the legal fiction that delusion was a necessary proof of insanity. He (Dr. Bevan-Lewis) agreed that conduct should be very widely taken into consideration, but a stumbling-block was provided by the problem as to how to deal with crime. It would be difficult to solve in the courts the problem as to what disordered conduct constituted crime.

Dr. MERCIER replied on the discussion, insisting that he was pleading for a systematic study of conduct. He had all along taken the view that every man had an unescapable responsibility for his own acts, and he had never regarded crime and insanity as convertible terms. In answer to Dr. Bedford Pierce's difficult question he would say look at the man's conduct and ascertain what he did. The man referred to did the most sane thing he could—namely, put himself under Dr. Pierce's care. He, Dr. Mercier, strongly repudiated the notion that mind was to be neglected altogether; but hitherto mind had been too exclusively studied, and conduct had been left out.

The Ross-Jones Test.

Dr. JOHN TURNER read a paper on the examination of cerebro-spinal fluid, with special reference to the diagnostic value of Ross and Jones's test.

Dr. HUBERT BOND corroborated the statement as to the ease with which the test was applied, and said he hoped to hear of some equally ready test to show the cases which, at some period of their lives, had had syphilis. The test just described seemed applicable only to syphilis of the nervous system.

Toxic and Exhaustive Psychoses.

Dr. W. H. B. STODDART enunciated a theory explanatory of toxic and exhaustion psychoses. He said the disease to which he referred was also known as post-febrile insanity, acute confusional insanity, and acute hallucinatory insanity, though on the Continent the term "amentia" was preferred. All the cases had the same series of symptoms, and they arose as the result of toxaemias of various kinds, mainly those following acute fevers, though it might occur in those who had undergone profound physical strain, as in one case, that of a man who won a long distance race. It occurred following mental shock, and in those who worked up for examinations. A remarkable symptom was peripheral anaesthesia, often with inability to recognize sounds. Some had apraxia, catalepsy, and katatonia; they also had constant hallucinations, in which there was a positive and a negative factor. The peripheral neurons were dissociated, and he believed that dissociation must occur at the synapses, for there was increased synaptic resistance in the whole nervous system.

Dr. SEYMOUR TUKE and Dr. BEDFORD PIERCE discussed the contribution, and Dr. STODDART replied.

Reviews.

AFTER-TREATMENT.

IT must be a very difficult task to write a good book on "after-treatment." The temptation to go outside the subject must be as strong as the case that could be made out for doing so. It is no use laying down rules for possible complications in the post-operative course of diseases unless the pathology of the malady and its incident extensions are known; so that, exactly as in the case of books on diagnosis, great restraint is necessary to save an author from serving up a mutilated work on surgery. The points to be looked for in such a volume are good arrangement, good typography, good indexing, and brevity. Professor REICHEL of Chemnitz, in his book on after-treatment of operation cases[1] has tried to secure accessibility, but his index is not quite elaborate enough, and in spite of marginal headings it really is not easy to find quickly information about any particular question. The general part of the book is concerned with wounds, infection, intoxications, nervous disturbances, special treatment required after operations in the individual tissues, fistulae, contractures, and so on. In the special part chapters are devoted to operations of regions and special organs. The style is, however, too literary for the subject, and in a striving after completeness the author has left his readers in the stress of indecision. It is no doubt true that for haemorrhage after gastro-enterostomy somebody has recommended the injection of gelatine. But for practical purposes one might as well "rub it with a bath-brick," as Beck would have said. There is not enough detail about such matters as colostomy cups and suprapubic dressings, whilst any attempt to include after-treatment of orthopaedic cases in a general treatise was foredoomed to failure. In spite of the enormous amount of information collected between these covers, it is not quite the book for the English student.

A book much more likely to be of practical service to students and practitioners alike is the *Preparatory and After Treatment in Operative Cases* of Professor HAUBOLD of New York University.[2] The author has written specially with the purpose of putting into the hands of the general practitioner a book that will make him thoroughly acquainted with modern methods of preparing patients for operations, and furnish him with such knowledge of present day practice in controlling the subsequent course as will justify an operating surgeon in leaving both preparation and after-care in his hands, and at the same time will give the family doctor the right to claim special fees from his patient for his specially skilled work. Professor Haubold thinks in this way to obviate a growing evil—the levy of a toll by the practitioner on the specialist's fees—but he points out that the public must be educated to the idea that the work *is* specially skilled. Although here again the index is not so full as it ought to be, the text is so fully illustrated, that a good deal may be learnt simply by turning over the pages. There is such an enormous amount of special apparatus, and so many mechanical contrivances for methods of after-treatment that any one may be excused for not being familiar with every demand any particular surgeon may make upon him. Here he can learn at a glance what is meant by the "Fowler" position; how to arrange for continuous suprapubic drainage; how to feed a child after intubation, and a hundred like matters. There are, of course, a good many points on which we might quarrel with the author's dicta, but he is always careful to say "I have found it best" or "I generally prefer," and that is an impregnable position. For instance, Professor Haubold is very nervous of purgatives after abdominal operations, and he is ready to let his patients out of bed much earlier than in this country is usually considered advisable. More definite directions ought to be given as regards the protection of hot-water bottles when used "in contact with the patient" in shock; more than a few reputations have been damaged by want of care in this particular. There is a long quotation from the writings of the inventor of a high-pressure respiratory and anaesthetic apparatus for use in operations on the chest, but the author does not tell us whether he has found it of value himself. He is open to a similar charge on other points, as, for example, in his description of the wonderful effects of isoform in rendering the intestinal tract aseptic. But wherever, as throughout the greater part of the book, he is writing out of the fullness of his own experience, his advice is sound and his directions are simple. This is a book that ought to prove valuable not only to the general practitioner but also to the surgeon and to the student.

PALPATION OF THE ABDOMEN.

IN spite of recent improvements and additions to our mechanical means of diagnosis, palpation remains the chief method by which we can explore the abdomen; yet, compared with auscultation or percussion, the art is little studied, and is rarely acquired, if at all, until comparatively late. Dr. THEODOR HAUSMANN, the author of one of two books we propose to class together, published three years ago a monograph on the palpation of the normal stomach, which we reviewed favourably at the time (BRITISH MEDICAL JOURNAL, December 7th, 1907), and his new volume, *Die methodische Intestinalpalpation*,[3] is an extension of the same careful methods to the examination of the bowels. As has been well said, palpation is the most subjective of all physical methods, and requires for its successful performance that the mind of the observer should accompany his finger-tips, and through them, as it were, see the abdominal contents. To do this is not easy,

[1] *Lehrbuch der Nachbehandlung nach Operationen.* Compiled by Professor Dr. P. Reichel. Second edition. Wiesbaden: J. F. Bergmann, 1909. (Sup. royal 8vo, pp. 575, illustrations 67. 12s.)

[2] *Preparatory and After Treatment in Operative Cases.* By Herman A. Haubold, M.D., Clinical Professor in Surgery, New York University. New York and London: D. Appleton and Co. 1910. (8vo, pp. 680; 429 illustrations. 25s.)

[3] *Die methodische Intestinalpalpation mittels der topographischen Gleit- und Tiefenpalpation.* Von Dr. Theodor Hausmann. Berlin: S. Karger; and London: Williams and Norgate. 1910. (Sup. roy. 8vo, pp. 169; Abb. 9, Taf. 2. M. 4.50.)

as the sense of touch has not been educated to convey delicate impressions, such as the blind receive from their fingers; the medical student or practitioner who sets about to learn must remember that only by time and patience can he acquire the delicacy of touch which will enable him to practise with success the difficult art which Dr. Hausmann teaches. He must not be discouraged if at first he cannot feel all that an expert says can be felt; still less should an impatient teacher or practitioner throw doubt on its value or discourage others from seeking to acquire the needful skill. Dr. Hausmann attaches great importance to the palpation of the abdomen on a topographical principle—that is, the observer should know the usual position of each organ and search for it in a methodical manner. The palpation should be at first sliding, the hand placed flat on the abdomen, moving the skin with the fingers, until all that can be made out superficially is recognized; the second stage is deep palpation, and, where greater pressure is required, he recommends the plan of superimposing one hand upon the other, the upper hand making pressure while the lower hand gathers the impressions. He warns beginners not to expect to do too much at once; at first a thin subject should be selected with relaxed abdominal walls, in whom it is possible to make out with comparative ease most of the points discoverable. He claims that those who will follow his directions to the end and will test the method for themselves will recognize its practical value; by it the normal stomach and the different parts of the bowel, the pylorus, great curvature, caecum, transverse colon, and sigmoid flexure can be made out. Further experience will enable the observer to follow out the whole of the colon, and even to recognize the portion of the ileum as it enters the caecum. Dr. Hausmann makes no pretension to be the originator of systematic palpation of the abdomen, but gives due credit to his predecessors, Glénard and Obrastzow. It is not suggested that it is possible in all persons to make out by palpation all the above points. Obrastzow believed he could feel the transverse colon in 33 per cent. of his cases; it is perceived as a transverse cylindrical body with an upper and lower contour which runs for three or four fingerbreadths on each side of the middle line; it is made out by slipping the finger with the skin up and down so that the gut rolls under the tips of the fingers. The pylorus is a short cylindrical body to the right of the middle line, also with an upper and lower contour, but the great curvature feels like a step without an upper contour. The pancreas can be sometimes perceived, but only in a small proportion of cases—estimated to be not more than 0.5 per cent.—and when felt it is probable that it is indurated. Hausmann recommends that the patient should be placed in an easy position on his back with his legs stretched out and the head and shoulders slightly raised; the arms should be laid parallel with the body; the couch should be so long that, as he says, a giant might be laid upon it. Palpation on a soft bed is, in his opinion, impossible. He gives details for the examination of all the above organs and for that of the kidney, psoas muscles, and appendix. Before attempting to palpate the last, the whole course of the large gut and the pars caecalis ilei must, he says, have first been made out; the last, if contracted and not bubbling, may resemble the appendix, but if two worm-like bodies can be felt one must be the appendix. He thinks the appendix can be felt in 25 per cent. of those cases in which the colon is palpable. He gives the following statistics of the cases in which he has been able to palpate the principal organs: Caecum, 79 per cent.; transverse colon, 62 per cent.; sigmoid flexure, 91 per cent.; pars caecalis ilei, 84 per cent.; vermiform process, 16 per cent. The book is a very good one and an English translation we feel sure would be appreciated.

Professor SACCONAGHI'S book on the diagnosis of abdominal tumours is much larger but deals with the same subject.[4] Professor von Noorden, to whom the book is dedicated, has written a short complimentary preface in which he says that the author relies mainly on palpation, and he agrees that the educated hand can diagnose all but a small percentage of cases without the use of more complicated means. The author defines an abdominal tumour as any abnormal circumscribed protuberance as well as any wholly or partially enlarged, distended, indurated, or displaced organ, which conveys the impression on palpation of abnormal resistance in the abdomen, but he limits his subject by excluding tumours of the wall, except so far as they may be mentioned for purposes of differential diagnosis, tumours of the diaphragm, because they are not palpable, and tumours of the pelvic organs, unless they develop upwards so as to come within the abdomen. He recommends that the patient should be lying flat, with no pillow, with the arms by the side of the body, and the legs straight or half-bent at the knee; he points out, however, that the bending of the knees does not relax the abdominal muscles, and he thinks it is preferable to support the knees by a pillow. The patient must breathe quietly and relax all his muscles; the mouth should be open. The hand may be oiled or rubbed with French chalk, but he thinks this necessary only in a small proportion of cases, the colon and liver being palpated better without it. The hand should be applied flat to the abdomen, at first softly and superficially, then more deeply when the muscles have softened. The finger-nails should be pared closely, and he recommends the plan of superimposing one hand upon the other when deep pressure is needed. In cases of difficulty—as, for example, in great obesity—he recommends palpating under water in a warm bath. He says chloroform should be avoided as "dangerous"; he mentions the local application of methyl-chloride as recommended by Guinard, but says he has not tried it. He claims to be able to palpate the horizontal portion of the duodenum! For palpating the spleen he recommends that the patient should be lying partially on his right side or, as he says, midway between the dorsal and right lateral positions, with the legs slightly bent, the left arm raised and the hand resting on the head which is bent backwards on a soft pillow. The physician should stand on the patient's right side with his right hand laid flat upon the abdomen in the line from the crest of the ileum to the left costal border, and should press gently with the finger-tips under the border of the ribs, meanwhile his left hand is placed at right angles to the left axillary line of the patient so as to grasp the lower part of the left side of the thorax and to exert pressure towards the palpating right hand, the patient should at the same time breathe slowly and deeply. He thinks the pancreas may be palpated if the stomach and bowels be empty, but only in people with relaxed abdominal walls. He does not think it abnormal to be able to feel the lower end of the kidney. After describing his methods of examination, he gives a classification of tumours based on their pathology, and then a second based on their localization, as (1) in front of the alimentary canal, and (2) posterior to the alimentary canal. He discusses the various points which must be investigated in connexion with each tumour, such as its mobility, its relation to the distended stomach or bowel, its form and size, the nature of its surface, its consistence, percussion note, the presence of pulsation or murmurs, painfulness or tenderness, and the results of puncture, or in some cases of exploratory incision. He has ranged widely over the literature of the subject, and has incorporated a great mass of material collected from scattered papers in medical periodicals, and in this way has made a large book, but we are not convinced that the subject is best studied in this fashion. As a work of reference the book has some value, but a student or young practitioner would spend his time infinitely better by the bedside with the guidance of a smaller, more concise manual. Various writers have stated that gastric ulcer is rare in Italy, but we were not aware that it was so rare as the author's figures suggest; he says that out of 62,598 patients treated in the Ospedale S. Giovanni at Milan there were only 90 cases of gastric ulcer, or 0.15 per cent.

[4] *Anleitung zur Diagnostik der Abdominaltumoren unter Zugrundelegung der Palpation.* Von Professor Dr. G. L. Sacconaghi. Uebersetzt von Dr. V. Plitek. Mit einem Vorwort von Professor Dr. C. v. Noorden. Berlin: S. Karger; and London: Williams and Norgate. 1910. (Sup. roy. 8vo, pp. 430; Abb. 90. M. 12.)

CELLS AND BLOOD CELLS.

IN their book on haematological technique[5] Drs. SCHRIDDE and NAEGELI deal only with the methods which they

[5] *Die hämatologische Technik.* Von Dr. Herm. Schridde and Dr. Otto Naegeli. Jena: Gustav Fischer. 1910. (Roy. 8vo, pp. 142; 1 coloured plate and 20 figures. M. 3.60.)

themselves have found useful, but the selected processes are described in such detail that they can be followed even by a beginner. The first part, from the pen of Dr. Schridde, deals with the examination of the blood-forming organs, and it is a noteworthy sign of the times that this part occupies a little more than half the book. The technique of obtaining the material, fixing, imbedding, cutting, and staining, are given in great detail, together with many practical hints of general interest. There is, of course, a description of the authors' method of demonstrating the Altmann granules. He recommends as a readily obtained material for the study of these granules the tonsils and adenoids which are removed in such large numbers by the surgeon. This part of the book concludes with a short description of the various types of cell and their staining reactions. The coloured plate which accompanies the description is rather crude. Dr. Naegeli has written the second part, which deals with the clinical examination, and, as might have been expected, it follows very much the lines of his well-known textbook. For blood counting he uses only the Thoma-Zeiss apparatus, but describes the numerous sources of error and the means of avoiding them in great detail. He does not object to the fluid flowing over into the ditch and advises that some fluid should be placed between the cover-slip and the slide. It is important to have a uniform distribution over the slide (a much neglected point) and to get Newton's rings. There is a useful table of the best staining methods for the demonstration of the various features of the cells. Innumerable methods are left without mention, but the only one we regret to miss is the Haldane method for the estimation of haemoglobin. Another slight defect is the omission of directions for the preparation of a few stains, including that of Giemsa. The authors recommend that they should be bought ready prepared—a procedure which in this country is apt to result in solutions of uncertain age and still more uncertain staining power. We should sum up the valuable features of the book by stating that, here are described the actual methods which have been subjected to the test of the extended experience of two eminent haematologists. The book should meet with a cordial welcome.

Professor SCHAFFER, in *Die Plasmazellen*,[6] reviews the subject of plasma cells from the point of view of normal histology. The discussion on these cells has often passed beyond the bounds of scientific controversy into the realms of personalities, but Professor Schaffer has given a very fair exposition of the present position of our knowledge. Waldeyer first used the term for a heterogeneous group of cells which have since been shown to be of very different types. Unna described as plasma cells, identical with those of Waldeyer, the inflammatory cells found in lupus, and further stated that they were only found in pathological conditions. The peculiar character of these cells, which had been previously described by Ramon y Cajal, is not doubted, but it has since been shown that they are certainly not identical with all the plasma cells of Waldeyer, and they are also found in normal tissues. The conception of a plasma cell is based on its strongly staining protoplasm, which is heaped up at the periphery of the cell, leaving a clear space round the nucleus; the latter is situated eccentrically, stains with basic dyes less strongly than the protoplasm, and has a chromatin network arranged in a radial manner. No single one of these characteristics is, however, typical of the plasma cell. Cells with these features are found in many organs of the body, especially in the alimentary canal. The dispute as to their origin is far from being settled, but the author states that all the evidence tends to show that they originate in all parts of the body from the small round cells with scanty protoplasm which, regardless of their origin, have been called lymphocytes. Their fate is also unsettled, but it seems that they may become mast cells, epithelioid cells, or may become pyknotic and die. The evidence for their becoming fibroblasts is very slight. As regards their function, the author, finding that they are very plentiful in the thymus of hibernating animals where the tissue is being absorbed, thinks that they serve some function in elaborating the products of tissue destruction. A valuable feature of the book is the very full bibliography, which extends to over six pages.

In a small volume and in a concise and clear manner Dr. FISCHER gives an excellent account of an investigation into the question of myeloid metaplasia and fetal blood formation.[7] Those who are interested in the subject would be well advised to purchase and read the monograph, for even if they do not agree with the author's conclusions, they will appreciate his evidence and admire his method of demonstrating his opinions. Dr. Fischer refers frequently to the work of other observers, and, after comparing it with the results of his own observations, he arrives at the conclusion that the myeloid formations which result in the production of blood cells are largely the consequence of the proliferation of connective tissue cells of embryonic character which are present in many organs, or of the transformation and return to a more rudimentary character of more highly specialized connective tissue cells and their subsequent myeloid growth. The first process he calls "heteroplasia," and the second "indirect metaplasia." He admits, also, as the result of his most recent work, that new blood cells, myeloblasts, basophile erythroblasts, and megakaryocytes, are produced under certain conditions from the endothelial cells of the capillary walls. The technical details of the methods by which Dr. Fischer has attained his results are to appear in a special monograph in which the physical and chemical problems of the fixing and staining processes will be discussed.

Dr. SCHWESINGER, of Coburg, has dedicated his Inaugural Dissertation to furthering the fantastic theory of cell reproduction put forward by Freytag.[8] Schwesinger has counted and measured all the cells in a series of slides, and in over three million cells has been unable to find any evidence of cell division. He has also measured all these cells and finds that he can classify them according to size, which he assumes is a classification according to age. He concludes that Virchow's celebrated dictum *Omnis cellula e cellula* must be modified into a general theory which is merely a generalization of Freytag's blood regeneration theory. This theory states that the red cells of the blood lose their haemoglobin in the spleen, and become shadows which migrate to the bone marrow, where they fuse together to form an undifferentiated mass called the amphiblast. The nuclear material, which has remained invisible during the intravascular life of the cell, again becomes visible and collects haemoglobin material around it, and forms an erythroblast, which again goes to the spleen, where it undergoes a single division, the nucleus becomes invisible, and the regenerated red cell is ready to enter the blood stream again. This theory is raised into a philosophy which embraces the state as an organism of the sixth order, whilst the amphiblast represents the first order. This work stimulated us to spend an evening with the Cellular Pathology, which we found ample compensation for the time spent on reading Dr. Schwesinger's thesis. If it does this in other instances it may serve a useful purpose.

POISONS.

THE second edition of Professor R. v. JAKSCH'S *Die Vergiftungen*[9] (Poisons) will fully maintain the reputation of the author and of the first edition. In the main the work follows the usual lines inevitable in a work dealing with poisons, but we know of no work which deals so comprehensively with apparently every substance that has ever given rise to symptoms of ill-health. In the introduction v. Jaksch makes use of the following definition of a poison: "From a clinical point of view everything may be termed a poison which can damage the organism not alone by its quality but by simple excess in quantity—even food"; and truly he discusses the poisonous properties of all foodstuffs—milk, fats, flesh, fish, and carbohydrates and their substitutes.

[6] *Die Plasmazellen.* Von Dr. Schaffer, Professor of Histology at Vienna. Heft 8. Gaupp and Nagel's Encyclopaedia of Anatomy and Physiology. Jena: Gustav Fischer. 1910. (Roy. 8vo, pp. 47. M. 1.20.)

[7] *Myeloische Metaplasie und Fötale Blutbildung.* Von Dr. med. H. Fischer. Berlin: Julius Springer. 1909. (Demy 8vo, pp. 148. M. 4.)

[8] *Untersuchungen über die Bedeutungen der Teilung bei den Körperzellen.* An Inaugural Dissertation for the Doctorate of the University of Bern. By Theodor Schwesinger. Bern: Falkultät auf Autrag des Herrn Prof. Dr. Rubeli. 1909. (Med. 8vo, pp. 43. Taf. I.)

[9] *Die Vergiftungen.* Von Dr. R. v. Jaksch. Second edition. Wien u. Leipzig: A. Hölder. 1910. (Sup. roy. 8vo, pp. 773; 42 illustrations. M. 16.)

Of poisons in the ordinary meaning of the word, the corrosives and metallic irritants, chlorine and its compounds, phosphorus, sulphur, etc., there is little that is novel in the work, unless it be the simple and uniform style in which each poison is described, but when we come to the vegetable poisons and the rarer organic poisons we at once perceive the enormous industry and care with which the book has been prepared; there is certainly no natural order of plants and scarcely a genus which is omitted and for which there is not given one or more illustrative cases of unfortunate effects from taking the plant in question. The book thus forms a most useful work of reference for European investigators of poisonous plants. Included in the group of animal poisonous products is an account of the ill effects that have followed injections of diphtherial, erysipelatous, antistreptococcic serums, of anticancerous injections, of preparations of mucor racemosus, of thyroid and adrenalin preparations; the descriptions, it is true, are brief, but they are there on record. Radium is also considered, as well as the effects of the Roentgen rays, sunlight, blue and red light; most striking charts are given of the effects of the *x* rays on leukaemic patients, charts which certainly give one reason to pause and consider whether such active and direct destruction of white blood cells is a process without harm to the body at large.

The last section, on endogenous toxins, is perhaps the most interesting to the clinical physician; here we have discussed retention toxins—from affections of the skin, from retention of faeces, from non-excretion of urine, from disturbance of the bile-forming and bile-excreting mechanism; then the toxins of acute infectious diseases—cholera, diphtheria, malaria, septicaemia, etc.; a third group of toxins or toxic processes induced by Addison's disease, alkaptonuria, leukaemia, worms, etc.; and, lastly, acetonaemia, ammonaemia, uricacidaemia. On ammonaemia we cannot resist quoting Professor v. Jaksch's somewhat caustic remark, "Cases of ammonaemia are rare—vielfach werden sie immer noch mit der Uraemie in einen Topf geworfen—and that may well be the reason why our knowledge of uraemia is not yet as clear as our knowledge of ammonaemia."

We have said enough to indicate the very wide range of the book, and to show that no disappointment is likely to arise when a search is made through its pages to find a case with which to compare one that may have happened to the seeker, and this we conceive to be the main reason for the popularity of the book; it is such a curiously human satisfaction to find in print an account of something one has oneself met with. The book is certainly one to possess as a work of reference.

OPERATIVE MIDWIFERY.

ELEVEN years of practising and teaching are Dr. HAMMERSCHLAG'S credentials as a teacher of operative midwifery. His book, *Lehrbuch der Operativen Geburtshilfe*,[10] is liberally illustrated, and to ensure accuracy in his pictures he has used photography whenever possible. The printers have reproduced the photographs extremely well. When the photographs were taken we know not. The extreme antiseptic ritual usual in German hospitals is enjoined in full extent—washing with chemicals, india-rubber gloves, etc., also clipping and shaving of the pubic hair. The photographs show the operator's hands duly encased in gloves; but most of them show also a luxuriant growth of pubic hair in the patient, so we conclude that the clipping and shaving is a late addition to the tribulations of child-bearing in Königsberg. A long list of instruments necessary for the accoucheur, sixty-nine in number, is given, nine of these being included in brackets as unnecessary for the general practitioner. Subtracting these, sixty different instruments is a liberal equipment. Among the things unnecessary for the general practitioner we notice the axis traction forceps. We should have said that the family doctor need have no other. What appears to us a valuable novelty in the book is the number of photographs and skiagrams illustrating the injuries to the fetus that may be produced in delivery. In describing the forceps operation, the author instructs the practitioner to have ready not only the forceps, but a sharp scissors, a needle holder, needles, dissecting forceps, two pressure forceps, suture material, a catheter, and a douche tin. If delivery is slow because the vaginal orifice dilates not well, snips are to be made with scissors. If the head is above the brim, not engaged in the pelvis, the case is not one for forceps, in Dr. Hammerschlag's opinion. The forceps he recommends is that of Naegelé. The axis traction forceps is briefly described, but the name of Tarnier is not mentioned in connexion with it. The author frankly recognizes that perforation of the living child is sometimes the duty of the accoucheur. The three-bladed cranioclast is the instrument he recommends for extraction. Three kinds of Caesarean section are put before the reader: The old classical operation, the "suprasymphysarean," and the vaginal operation. The supreme advantage of the classical Caesarean section is that it abolishes every kind of mechanical difficulty. But it seems to us that with the other two operations the operator may open the uterus and then find it a troublesome job to get the child out. The mortality of the classical Caesarean section Dr. Hammerschlag estimates to be 7 per cent.; of the vaginal Caesarean section, 13.9 per cent.—a mortality much too high to recommend its general adoption. The chapter on *post-partum* haemorrhage does not seem to us very satisfactory. Among the measures suggested are "Momburg's tubing"—that is, encircling the abdomen with india-rubber gas tubing pulled so tight as to compress the abdominal aorta. Another thing is to put on the abdomen for the same purpose a bag containing about 8 lb. of moist sand. Is this to be had in every lying-in room? As in most German textbooks, plugging with iodoform gauze is mentioned as a good treatment; but the reader is not told that patients have died in spite of it, or that it has been done so frequently by its strenuous advocates that it is impossible not to think that many of the patients would have done just as well without it. There is no mention of bimanual compression of the uterus between one hand in the vagina and the other on the abdomen. Nor is the pituitary infundibular extract referred to. The prophylaxis of *post-partum* haemorrhage is not so fully emphasized as we think it should be. We are aware that "comparisons are odorous." Nevertheless, we cannot help comparing this book with a recent English work, identical in scope—we refer to Dr. Munro Kerr's *Operative Midwifery*. We do not think the Scottish obstetrician has anything to fear from the comparison. Good as Dr. Hammerschlag's book may be for the Germans, the English-speaking doctor will find Dr. Munro Kerr supply his need at least as well, and in his own language.

The fifth edition of Dr. BARTON COOKE HIRST'S *Textbook of Obstetrics* was noticed in the JOURNAL of August 24th, 1907. Now we have before us the sixth,[11] revised and enlarged. The title page says "847 illustrations, 43 of them in colours"; an advertisement facing the title says "747 illustrations"; the last illustration in the text is numbered Fig. 776. The author exemplifies a tendency of the age: he is a gynaecological surgeon rather than a practical obstetrician. He knows not how to decapitate. He mentions Ramsbotham's hook, but has evidently never used it, for he gives his readers the choice between that and some absurdly inefficient methods. He describes the repair of fistulae, the removal of inflamed tubes and ovaries, abdominal hysterectomy, and other surgical proceedings. The pupil for whom he writes is the man who will conduct labours and operate in a well-found theatre in a hospital, where every conceivable device for sterilization of everything that can be sterilized is provided. He has no thought of the midwife, or of the general practitioner who must attend a great many confinements in private houses. Such a man cannot every time he visits the patient scrub his hands for ten minutes by the clock with various chemicals and then put on sterilized india-rubber gloves. The wear and tear of the epithelium forbid the first, and the expense is prohibitive of the second. Much

[10] *Lehrbuch der Operativen Geburtshilfe.* Von Professor Dr. Siegfrid Hammerschlag, Berlin, Privatdocent an der Albertus universität zu Königsberg-i.-Pr. Leipzig: S. Herzel, 1910. (Sup. roy. 8vo, pp 520; Abb. 191. M.16.)

[11] *A Textbook of Obstetrics.* By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania. Sixth edition. Philadelphia and London: W. B. Saunders Company. 1909. (Med. 8vo, pp. 992; 847 illustrations, 43 of them in colours. 21s.)

simpler means have been found effective in protecting mothers from puerperal infection. In placenta praevia the author tells us that the maternal death-rate has been about 20 per cent.; but with proper treatment, "carried out by men who understand antiseptic methods, the mortality almost disappears." Then why quote what may have happened in the dark ages of midwifery? At p. 218 we find a statement that needs explanation. In a footnote the author tells us: "Even with firm adhesions of long standing binding the uterus firmly backward, I have seen spontaneous repositions take place." But how does he know there were adhesions? If we ourselves had seen a retroverted uterus, which we believed to be adherent, spontaneously right itself, our conclusion would have been that we had been mistaken in supposing that uterus to be adherent.

NOTES ON BOOKS.

A THERAPEUTIC lexicon may be a useful compilation if it is fairly complete, and if the reader utilizes it merely to refresh the memory. On the other hand, it should not be tolerated for the purpose of actually imparting knowledge. Dr. HAHN has succeeded in piecing together much of what passes as therapeutics, and has arranged his material alphabetically in his *Therapeutisches Lexikon*,[12] giving a separate note to each method of treatment, and to many conditions requiring treatment. In this way he has rendered the book satisfactory from the point of view of completeness, and has even added notes on matters which need not have been included. His manner of dealing with his subjects rather suggests the wholesale treatment of symptoms or diseases without any consideration to the personal factor. The book may be very useful in the hands of an intelligent and well-informed practitioner, who would not accept everything in the book blindly, and who would merely refresh his memory on special points in special cases. We are, however, inclined to consider that there is no real necessity for such a cut and dried epitome of treatment, although we admit that the book has been carefully and well compiled.

The Conquest of Consumption and the Duties of Municipalities is the title of a most useful address published by the Manchester and Salford Sanitary Association. So much important work is being at present carried out by the various voluntary health societies and sanitary associations throughout the country in the home visitations of consumptives, that it is essential that the members of such associations should be taught the main facts in relation to the spread of consumption and the measures needed for prevention. Dr. ARTHUR LATHAM is especially well fitted to impart the required information, not only because of his intimate knowledge of the subject, but because he is able to give a clear and comprehensive, though concise, summary of the facts in simple and convincing language. Dr. Latham urges the establishment of antituberculosis dispensaries in our large towns as a means of getting at close quarters with the disease and of finding the early cases whilst in a curable condition by the systematic examination of contacts. This address, which is published at the price of one penny, is recommended to all health societies for the use of their members, and especially of those who are acting as "phthisis visitors."

The eighteenth volume of the *Archives of the Middlesex Hospital*, being Clinical Series No. IV, contains some ten papers, all purely clinical in character, and commendably succinct. In the opening paper Dr. Pasteur brings out the clinical value of the orthodiagraph, and in a later paper (on a case of chorea gravis which yielded at last to hot packing) makes a remark to the effect that very serious cases of chorea are now rarely encountered; he attributes this to the introduction of salicylates in the treatment of acute rheumatism, but it may be asked whether cases that could be called very serious were ever anything but uncommon. Dr. Bonney describes a case of persistent menorrhagia which he treated by an operation devised by Howard Kelly, resulting in restoration to health and establishment of single day periods. The operation, termed by its inventor, "utriculoplasty," consists in excising a wedge-shaped portion of the whole thickness of the body of the uterus, and uniting the remainder, so as to form a miniature uterus or utriculus. Its object is to reduce the size of the "menstrual area," whilst conserving a portion of it sufficient for the continuance of its function. Dr. Bonney seems to regard it with approval, but does not state what would happen if impregnation occurred in a patient thus treated. Nor is it made clear what advantage the operation offers over subtotal hysterectomy, more especially as the writer states that when the latter is performed for such cases, but the ovaries conserved, the enforced cessation of the periods is followed by an immense improvement in the general health, without any drawback whatsoever.

[12] *Therapeutisches Lexikon.* By Dr. J. Hahn. Leipzig: Wilhelm Engelmann. 1910. (Fcap. 8vo, pp. 822. M.12=11s. 9d.)

MEDICAL AND SURGICAL APPLIANCES.

A Small Thermo-Generator.

A SIMPLE apparatus for generating electricity to illuminate surgical lamps and provide heat for light cautery work, introduced by Messrs. F. Davidson and Co. (29, Great Portland Street, London, W.), is based on the well-known fact that electricity can be generated by the liberation of the elements of certain metals, but we do not at the moment recall another instance of the commercial application of this principle. The thermo-generator is provided in two forms, methylated spirit being used in the one instance and gas in the other. Two rows of hollow copper tubes, each connected with its neighbour, are placed vertically between two metal plates on a base-board; a perforated tube runs horizontally through the whole apparatus, connected at the end with the spirit lamp or the gas jet, as the case may be. When the lamp and all the tube perforations are lighted a current of electricity is generated very rapidly, sufficient to illuminate a 4-volt lamp or recharge small accumulators. The current, of course, is very small, and there appear to be practical difficulties in the way of greatly increasing the generating capacity of such an apparatus, but the arrangement evidently has certain useful applications, especially for work abroad, when dry batteries are not convenient.

A Catheter for Prostatic Cases.

Mr. HUGH LETT, M.B., F.R.C.S. (London), writes: Some patients who have to practise regular catheterization, because of an enlargement of the prostate, find that their case is complicated by the presence of a stricture in the anterior urethra. This may give rise to little trouble if dilated at regular intervals; but, on the other hand, it may contract rapidly after dilatation and make catheterization very difficult, no matter whether a coudée or an olivary catheter be used, for the following reasons: An olivary catheter can be passed through the stricture, but it is very likely to hitch against the posterior wall of the prostatic urethra or against a projecting middle lobe of the prostate. The ordinary coudée catheter, although it can be passed through the prostatic urethra with ease, is passed through the stricture with difficulty, or not at all, because of its blunt extremity. To obviate this, Messrs. Bell and Croyden, of 50, Wigmore Street, W., have made for me a catheter which combines the principles of both the olivary and coudée catheters. The chief points of interest are: (1) That with its olive head, narrow neck, and tapering shaft, it resembles an ordinary catheter, and so readily enters the stricture. (2) It is strongly curved in the last inch. This enables it to overcome the difficulty of the prostatic urethra, the angle of the coudée catheter being replaced by this curve. (3) For the last two inches the catheter is soft and pliable while the rest of the shaft is firm and rigid, thus giving the firmness which is wanted for passing the instrument through the stricture, while at the same time the tip and neighbouring part of the catheter are so soft that there is little or no danger of injuring the urethra or prostate unless very carelessly used. I have also found this catheter useful in patients who have a false passage in the floor of the urethra, especially when this is situated near the triangular ligament, for the point of the instrument can be controlled to a certain extent, and the curve keeps it against the roof and away from the opening in the floor. The catheters are of pure silk, and woven in one piece on a spandril bent to the required angle. The extreme flexibility of the point with the stiffer shaft is caused by a different mixture of gum and resins for the two divisions. There is no fear of their cracking and splitting, and they will stand sterilizing in mercury bicyanide or perchloride. If boiled they should be allowed to cool on a slab for at least half to three-quarters of an hour before use, otherwise they will be pulled out of shape. Naturally the boiling will shorten the life of the catheter, but it is not necessary, mercury bicyanide having been proved to cause complete sterilization.

SEVENTY-EIGHTH ANNUAL MEETING

OF THE

British Medical Association.

LONDON, JULY, 1910.

SCIENTIFIC MUSEUMS.

(*Continued from page 1246.*)

THE MUSEUM OF ST. GEORGE'S HOSPITAL.

THE museum of St. George's Hospital owes its origin to the zeal and generosity of the eminent surgeon, Sir Benjamin Brodie. In his autobiography he tells us that in the year 1812 he formed a museum of specimens illustrative of surgical pathology in a house in Great Windmill Street, "being at first content with the preservation of such specimens as he was able to prepare with his own hands." Later he obtained the help of Dr. James Somerville, and in the course of a few years became possessed of a collection of preparations which was admirably adapted for the intended purpose of illustrating his lectures. In 1829 he presented the whole of this collection to the governors of the hospital for the use of the medical school. Soon afterwards it was found desirable to have an anatomical theatre, museum, and lecture rooms, situated in one building, and under the entire control of the hospital staff. Suitable premises were therefore obtained in Kinnerton Street, and here was the first home of the hospital museum.

From this time onward the collection has been added to partly by the labours of successive curators and partly by the donation of private collections and specimens. In 1852 the late Mr. Caesar Hawkins presented the whole of his collection, and his letter conveying the gift is preserved in the museum. In 1866, owing to the removal of Tattersall's to Albert Gate, the site of the present school buildings became vacant and was leased by the late Duke of Westminster to the governors at a nominal rent. The present museum building was completed in 1868, and formally opened on October 1st of that year by the late Sir Henry Acland, Regius Professor of Medicine at Oxford, and a former student of the hospital.

A catalogue of the specimens was published by the late Dr. John Ogle and the late Mr. Timothy Holmes in 1866, and a supplementary catalogue in 1882 by Sir Isambard Owen, who also rearranged and classified the collection. Since 1882 the catalogue has been kept in manuscript.

In addition to the donors already referred to, mention must be made of the names of Sir Benjamin Brodie, second baronet, the late Dr. Seymour, and of Dr. Howship Dickinson, who have given collections of water-colour drawings; and of the late Mr. Stone, sometime lecturer on midwifery at the hospital, who gave his valuable collection of embryological and obstetrical specimens.

In the museum are preserved John Hunter's chair and dissecting table, autographs of Edward Jenner and the skin of the cow from which he took the first vaccine matter, as well as other interesting and historical relics.

The number of preparations is at present about 6,000, exclusive of the histological collection which has recently been formed. In the Curator's Room are preserved the *post-mortem* and case books, which date back to January 1st, 1841.

THE GORDON MUSEUM, GUY'S HOSPITAL.

The present museum was opened in 1905, and the splendid building in which the specimens are now housed was the gift of Mr. Robert Gordon, a governor of the hospital.

The Guy's museum dates its commencement from the eighteenth century, a considerable number of preparations being in existence in 1804, as shown by the catalogue of that date. These specimens, and others collected later, formed the nucleus of a new museum opened in 1825, of which Dr. Hodgkin was appointed curator; his catalogue, published in 1829, contained descriptions of about 3,000 preparations. Many remarkable specimens were put aside in those early days, as, for example, a piece of muscle containing white specks which were the first recognized preparations of *Trichina spiralis;* portions of brain tissue with supposed tuberculous deposits, later recognized to be syphilitic in origin; organs likened to bacon, now known to be the result of lardaceous disease; and many others.

The beautiful wax models of dissections of the human body and of diseases of the skin were executed by Mr. Joseph Towne. Towne brought a model, a small human skeleton, made when he was 17 years of age, to show to Sir Astley Cooper, who, recognizing the skill of the workman, sent Towne with a letter of recommendation to Mr. Harrison, the treasurer of the hospital, with the result that in 1826 Towne was appointed modeller to the hospital; the letter and model referred to are in the museum. The models of the dissections of the human body were made from dissections by Mr. John Hilton when demonstrator of anatomy, and previous to his appointment as assistant surgeon to the hospital. Most of the models of the diseases of the skin were executed at the instigation of Dr. Addison. In all Towne made more than a thousand models for this museum, working there from the year of his appointment until his death fifty-three years later. Towne was truly an artist to whom Guy's men, among others, owe an eternal debt of gratitude for his accurate and unique life's work.

The curators who followed Dr. Hodgkin number, amongst others, Sir Samuel Wilks, Drs. Habershon, Moxon, Fagge, Goodhart, and Carrington.

Since the early days alluded to the museum has grown until it contains, in addition to the models, some 6,000 pathological specimens, which in great part have been recently remounted and recatalogued, or are in process of being so; the medical section is finished. In addition there are some 2,000 drawings and paintings of various diseases.

The present Gordon Museum is divided into four large compartments with central and side staircases. Two galleries run round each compartment, and they are fitted with shelves painted white, and having a black background, as this was found to be the most suitable arrangement for showing the specimens to advantage. The medical preparations occupy the galleries of two of the sections—the obstetrical and gynaecological, and the surgical specimens are placed in the galleries in the other two sections.

On the ground floor Towne's models are placed, and here also is a collection of models prepared by the curator of the Dental Museum. In one of the ground-floor compartments are two cases containing a collection of surgical and other instruments of historical and antiquarian interest; they have been arranged by Dr. F. W. Cock, who most generously presented many of the most valuable of them to the museum, and at whose instigation the collection was started. The museum is top-lighted, and artificially lit with electricity. The whole museum has been specially arranged with a view to the needs of students of pathology, and it amply fulfils its purpose. One of the ground-floor bays is reserved for class demonstrations to the students upon the specimens in the museum.

The historical details relating to the museum are taken from Wilks and Bettany's *History of Guy's Hospital.*

THE MUSEUM OF ST. THOMAS'S HOSPITAL.

The pathological collection of St. Thomas's Hospital contains over 3,000 preparations, and illustrates all the morbid lesions of importance met with in the various organs of the body. The present descriptive catalogue has been entirely rewritten by Mr. S. G. Shattock.

The collection includes many specimens of historical interest, such, for example, as those used by Sir A. Cooper to illustrate his works on dislocations and fractures, on hernia, and diseases of the testis; as well as two preparations showing the result of ligature of the abdominal aorta, and Mr. Travers's preparations exhibiting the natural process of repair of injuries of the intestines, and results of the experimental ligature of arteries. The section of fractures contains numerous examples of gunshot injuries obtained from cases under the care of Sir William MacCormac during the Franco-German War (1870).

A special feature of the museum is the selection from the general collection of a complete series of type specimens illustrating medical, surgical, and gynaecological pathology. These are placed on the front floor of the museum, and of each series a card catalogue is maintained.

The marble bust of Morgagni in the museum was the gift of an Italian committee, which included the chief professors at the various Italian universities. It was formally presented to the hospital by the Italian Ambassador in October, 1899.

THE MUSEUM OF ST. BARTHOLOMEW'S HOSPITAL.

The museum of St. Bartholomew's Hospital was formally inaugurated in 1726 by the following resolution of the Governors: "Two convenient rooms being prepared under the cutting ward—[at this time the surgeons were paid 6s. 8d. for each operation for stone in the bladder]—one for the more decent laying the dead patients before the burial, the other a repository for anatomical or chirurgical preparations, it is ordered that . . . whatever preparation shall be given to the repository shall be numbered, and the name of the person who gave it and the history of it be entered in a book to be kept at the compting-house for that purpose, and that Mr. Freke (an assistant surgeon) do keep the key of it, who shall be accountable for the loss of any preparation; and when he shall decline it the youngest assistant surgeon shall do the same." This record book is not extant, nor do we know whether any of these earliest preparations are at present in the "repository." Nevertheless, the collection contains several specimens which were prepared by or belonged to Percival Pott, surgeon to the hospital from 1749 to 1787. One of these is a congenital hernia (No. 2138), probably prepared before 1756, when Pott published an essay on this subject—his first work; the other (No. 1097) a specimen of Pott's disease of the spine, of which specimen we are told, on the authority of Abernethy, "that it was one of the first cases which showed the benefit of issues in the treatment of the disease."

A large accession to the museum thus founded was due to Abernethy, who became assistant surgeon on the retirement of Pott. In April, 1821, while urging the governors to rebuild the anatomical theatre, he offered to present to the hospital, in trust for the medical school, his own large collection of preparations, "amounting in number to several thousands." A month later he and Edward Stanley made a formal tender of the preparations and all the other property in the museum. The offer was accepted and a catalogue prepared, which was published in 1831. In 1839 James Paget became curator. Of the many legacies of his curatorship one of the most important was a new catalogue published in 1846. Paget was succeeded by Savory, who brought out in 1862 a further catalogue, which remained in use till 1881. In this year the preparations were transferred to the present museum, a large building situated over the library, and the transfer was made the occasion of a rearrangement and re-cataloguing of the pathological specimens, the work being carried out by Mr. F. S. Eve, the then curator, and his successor, Mr. Bowlby. Of late years attention has been concentrated upon the pathological side of the collection, which now includes some 10,000 specimens, casts, calculi, and drawings. Descriptions of the specimens are supplied by means of scrap-book catalogues, into which are pasted printed descriptions of specimens added from year to year.

THE MUSEUM OF THE ROYAL FREE HOSPITAL.

The Royal Free Hospital museum is of comparatively recent date. In 1853, when the Hunterian School of Medicine in Bedford Square closed, the late Mr. Gant, who was then a lecturer in physiology, migrated with the students to the Royal Free Hospital, and he relates how in the same year he visited Edinburgh and Paris to collect specimens for the formation of a museum in connexion with the new school. He brought back six skeletons and other anatomical material from Paris, and a series of pathological specimens which he obtained from the late Professor Hughes Bennett in Edinburgh. In spite of Mr. Gant's energy and enthusiasm, the school was not able to fulfil all the requirements for recognition by the Council of the Royal College of Surgeons; the students were transferred at the end of the winter session to another hospital, and for the next thirty years little attention was given to the newly formed museum. In 1888, some years after the London School of Medicine for Women had become attached to the hospital, the need was urgently felt for developing the museum and making it available for teaching purposes and a superintendent and curator were appointed. Since then the museum has steadily grown, the additions being derived mainly from the hospital, but specimens have also been given by past and present members of the staff, former students and some other hospitals.

The present museum and pathological laboratories were erected at a cost of about £2 000, the greater part of which was generously defrayed by Mrs. Webb, as a memorial to her daughter, Miss Mabel Webb, who for two years before her death had been an enthusiastic curator, and with whom the scheme and plans for the new buildings had originated. The museum was formally opened by Lady Reay in February, 1900. It contains rather more than 1,800 specimens, the majority mounted by the Kaiserling method; a few, added this year, are put up in liquid paraffin. In 1904 the specimens were regrouped and catalogued, as far as possible, on the plan of the Royal College of Surgeons Museum. The most complete of the 40 series into which the specimens are divided is that illustrating diseases of the thyroid gland, which includes 117 examples. The series of injuries and diseases of the bones and joints comprise 276 specimens; for this portion of the museum a separate descriptive catalogue has been written by Mr. E. W. Roughton for the use of students. The museum also contains a collection of plaster casts, a series of bacteriological cultures, and a set of slides illustrating morbid histology.

THE MUSEUM OF THE WESTMINSTER HOSPITAL.

The museum of the Westminster Hospital is situated in a well-lighted department on the first and top floors of the medical school in Caxton Street, Westminster.

Previous to the building of the medical school the collection was housed in the hospital itself. Only a few of the older specimens remain at the present day; they consist almost entirely of a historical collection of gunshot injuries from the battle of Toulouse, presented by the late Mr. Guthrie, surgeon to the hospital.

The collection, as it at present exists, owes its success to the energies of Mr. C. Stonham, who, after collecting some fourteen hundred specimens, catalogued them in a published work in which each section is preceded by a brief explanation of the morbid lesions the specimens illustrate; it thus serves as a textbook of systematic pathology. The specimens mounted at that time still form the main part of the surgical section. In more recent years, however, the methods introduced for preserving the natural colours of specimens have rendered it possible to replace the old discoloured ones, and to improve more especially the medical section by exhibiting lesions previously impossible. Subsequent curators have turned their attention to this with such good effect that now the two thousand specimens preserved, together with the catalogue and the several descriptive appendices, form a fairly complete picture of the pathological anatomy of disease. The value of the catalogue is enhanced by the clinical and clinico-pathological data referring to each specimen, and cross references render it possible to find the full particulars of the individual cases in the *post-mortem* and clinical laboratory records preserved in the hospital laboratories. Rarer specimens of pathological curiosities have usually been sent to the museum of the Royal College of Surgeons, as it is considered that the museums of the individual schools should be principally adapted to the needs of the undergraduate. During the past two years the present curator, Dr. J. M. Bernstein, has added 190 new specimens, and a printed catalogue of these has been prepared.

A recent feature of the collection is the grouping of specimens of medico-legal interest in a separate class, forming a nucleus of what in time ought to develop into a valuable aid to the medical jurist. There is also a useful section containing specimens of gynaecological interest. A special collection of specimens illustrating normal anatomy prepared by the late Mr. Holthouse, senior surgeon to the hospital, is catalogued in a separate work in manuscript.

In the past session an attempt was made to increase the usefulness of the museum by holding a course of post-graduate evening demonstrations open without fee to old students of the school and other practitioners. The value of such a course is obvious, and it ought to meet with success.

THE MUSEUM OF THE MIDDLESEX HOSPITAL.

The museum of the Middlesex Hospital forms the only remaining part of the original buildings of the medical school as founded by Sir Charles Bell in 1835. Bell's original collection of specimens had been stored in the Windmill Street school—the famous school founded by Hunter—which was destined to be the immediate predecessor of the Middlesex School. In 1825 Bell's collection was disposed of to the Edinburgh College of Surgeons, and he straightway commenced, as he tells us in his letters, "if not tooth and nail, at any rate very seriously to commence a new one."

The collection at the Middlesex Hospital at first consisted of the preparations belonging to Sir Charles Bell and the lecturers whom he brought with him from Great Windmill Street. Among the specimens now in the museum belonging to this period may be mentioned the beautiful series of wax models illustrating the development of the embryo of the chicken, and the magnificent series of anatomical and pathological water-colour drawings made by Sir Charles Bell, himself an artist of no mean power, and who in 1808 had been appointed Professor of Anatomy to the Royal Academy. On the death of Dr. Sweatman the whole of his collection, amounting to 660 preparations, was purchased for 350 guineas and added to the museum. The first catalogue, the manuscript of which is still in existence, was prepared by Mr. Lonsdale in 1840. In 1847 a second catalogue was prepared by Mr. C. H. Moore, who afterwards became surgeon to the hospital. Among the specimens illustrating diseases of arteries is preserved the first aortic aneurysm which was treated by the introduction of wire. The operation was performed by Mr. Moore in 1864; the patient after surviving five days died with pyaemic deposits in the kidneys. Sir William Flower, who afterwards became conservator of the museum of the Royal College of Surgeons and later succeeded Owen as director of the British Museum of Natural History, was for some time curator of the Middlesex Hospital Museum. The museum contains many specimens prepared by Flower; the zoological collection, illustrating the chief facts of comparative anatomy, was almost entirely made by him.

Dr. Spencer Cobbold, F.R.S., the eminent helminthologist, succeeded Sir William Flower in the curatorship, and enriched the museum by the addition of his collection of parasitic worms. To this period also belongs the fine series illustrating typhoid ulceration, presented by Dr. Murchison, and to a somewhat later period the classical series of specimens presented by Dr. Greenhow, to illustrate changes in the lungs in the pneumokonioses.

A third catalogue was prepared in 1869 by Dr. Cayley, who, during his curatorship, added the interesting group of specimens illustrating the changes in the bones in osteitis deformans. Dr. Kingston Fowler, with the help of Mr. J. Bland-Sutton, in 1882 prepared the large catalogue at present in use, which has been further enlarged by the catalogue of "Additions" prepared by Dr. A. F. Voelcker in 1907. The museum is now under the competent direction of Dr. C. Ernest Lakin. The museum contains the busts of many distinguished men connected with the hospital and school, and there are medallions of Sir Charles Bell and Sir John Burdon-Sanderson. The skeletons of Landseer's "Dignity and Impudence" have found a home in the museum, while among the specimens of more medical interest may be mentioned the models of skin diseases from the collection of Sir Erasmus Wilson, a former member of the hospital staff. The first renal calculus to be removed by nephrolithotomy will be found among the calculi, and the fine series of specimens illustrating the surgical diseases of the kidney, at present arranged on the shelves in the centre of the museum, were presented by Sir Henry Morris. The museum possesses a fine series of skulls of interest to the anthropologist, and this section has recently been enriched by the addition of several models of the skull of prehistoric man and allied genera. Another section of the museum is devoted to anatomical preparations, and a number of old surgical instruments and appliances are preserved in the curator's room. The *post-mortem* records date from 1850.

THE MUSEUM OF CHARING CROSS HOSPITAL.

The present Museum of Charing Cross Hospital was built in 1881, when the medical school moved from the hospital buildings to its new home in Chandos Street. For many years previously, however, the collection of pathological specimens had been housed in the hospital. Originally brought together by Mr. Howship, these specimens passed under the curatorship of Mr. Canton, who, in addition to increasing their number, enhanced the value of the collection by preparing the first manuscript catalogue. His descriptions, together with those of his successors, remained in manuscript for some years, but after the removal the collection was found to have become so large and varied that the Council of the hospital decided on the publication of the first printed catalogue; this appeared in 1888. The concluding years of last century marked a period of further activity, when the whole of the collection was revised by Dr. Hunter, improved methods of mounting were introduced, and some 1,300 additional specimens added.

In 1902 the growth of the museum had been so considerable that a new edition of the catalogue was printed, followed a few years later by a supplementary appendix. More recently still the entire series has been again revised, the older specimens remounted, and sectional catalogues corresponding to the different groups of specimens in the museum have been prepared. By means of manuscript entries on the interleaves of these volumes a description is available of every new specimen as soon as it is placed on the shelves.

One or two special features of the Charing Cross Hospital Museum may be mentioned. Charing Cross was one of the first, if not the first museum in London to adopt the formalin method of mounting. This process, though somewhat more costly than the older methods, preserves the natural colours of the tissues in a most satisfactory and permanent manner. The increased interest and teaching value of a specimen thus prepared will be appreciated by every practitioner who recalls the bleached and shrunken spirit preparations of his student days. Some of the formalin specimens mounted nearly twenty years ago are to-day as fresh and bright as if they had just been brought from the *post-mortem* table. Another useful feature of the museum is a cabinet of microscopic slides. Sections of every pathological specimen destined for the museum are cut, and a slide, numbered to correspond with the specimen, is entered in the cabinet. This arrangement is of considerable help to workers in the museum, who thereby are enabled to study side by side and first hand the microscopical as well as the macroscopical details of the specimens.

In the curator's room, adjoining the entrance to the museum, are preserved the *post-mortem* records of the hospital. The earlier volumes are indexed separately, but recently the card-index system has been introduced by the present curator, Dr. David Forsyth, so as to facilitate the use of the valuable pathological material in the reports.

MUSEUM OF THE LONDON HOSPITAL MEDICAL COLLEGE.

The museum of the London Hospital Medical College, like the Medical College itself, owes its origin mainly to Sir William Blizard, Surgeon to the London Hospital, 1780–1833, and President of the Royal College of Surgeons. It was in August, 1781, that Sir William Blizard obtained permission to deliver courses of lectures on anatomy and surgery in the demonstrating theatre of the hospital, and in 1783 a special building was erected at the east end of the hospital to serve as a medical school. The cost of the building was largely defrayed by Sir William Blizard, who was the leading spirit of the enterprise, and whose specimens obtained from the operating theatre and *post-mortem* room formed the nucleus of the London Hospital Medical College Museum.

In 1804, owing to the increasing needs of medical and surgical science and the necessity of attracting to the London Hospital a staff of "dressing pupils," a new building was erected close to the hospital, and the present Medical College was inaugurated. The specimens, already of great value, were housed in a separate room in the new college, and the museum had a distinct existence. During the alterations that took place in 1871 one of the chief was the increase of the size of the museum, which was then enlarged to its present dimensions.

The object of the museum has always been to collect anatomical and pathological specimens of teaching value

and not merely the bizarre and extraordinary, and the school has been extremely fortunate in having a succession of curators who have held this object clearly in view.

Amongst the collections of specimens especially noteworthy are those of diseases and injuries of the testis collected by Mr. Curling (1834–69). Many of these specimens are figured in his classical work on the testis, and have been copied into every textbook written on the male generative organs since the publication of that book.

Dr. Ramsbotham (1854–69) added a collection of gynaecological specimens and specimens of the malformation of the fetus and monstrosities, whilst Mr. Little (1862–69) presented to the museum over 100 plaster casts illustrating the deformities of the foot, hand, and chest.

The museum contains a large number of drawings and water colours illustrating diseases of the skin, which it owes chiefly to the energies of Sir Stephen Mackenzie and Sir Jonathan Hutchinson. The latter still continues to take great interest in the museum, and is one of the trustees of the Witherby Fund, which was given by the Misses Witherby for museum purposes in memory of their brother. The anatomical side of the museum chiefly consists of dissections made by students each year for the dissecting prizes, but Mr. Keith, now Conservator of the Museum of the Royal College of Surgeons, during his curatorship added many beautiful anatomical and embryological dissections. Amongst specimens of special interest are the skeleton and plaster casts of the "Elephant Man," added by Sir Frederick Treves; the skeleton of the Irish Giant, articulated by Mr. Openshaw; and the photographs of the patients by which Sir James Paget illustrated his original paper on osteitis deformans.

In 1890 a catalogue of the specimens contained in the museum was printed and published by order of the College Board, the chief bulk of the work being done by Mr. Openshaw, who was then curator. This catalogue served till 1907, when Mr. Keith started to recatalogue the specimens; this work is still progressing under the present curator, Mr. Russell Howard, and is now nearly complete.

The collection of the Pathological Institute comprises at present about 1,500 specimens. The specimens are put through the Kaiserling process, and are then placed in large tanks of glycerine and water. There is a card index kept of these specimens, and in this is given the reference to the record of autopsies or of specimens sent for investigation from the theatres. A special record of the autopsies for each year is kept in a book in which is entered the summary of the macroscopic changes in each organ, of the microscopic findings, and the clinical history. The record of the specimens sent for investigation from the theatres is kept in a similar manner. This collection of specimens can be examined by permission of the Director, Dr. H. M. Turnbull, or the Assistant Director.

A special collection is kept to which students have free access.

The Museums of University College and University College Hospital Medical School.

The pathological museum of University College Hospital Medical School was originally housed in University College. The nucleus of the collection consisted of a large series of surgical specimens purchased from Sir Charles Bell by the college. By subsequent additions made from year to year by the professors and gifts from friends of the college the collection has been gradually increased until it now consists of over 5,000 specimens. Of the more noteworthy contents of the museum may be mentioned the collection of water-colour paintings of pathological subjects, 1,100 in number, made by Sir Robert Carswell when he held the professorship of pathological anatomy in the college; a portion of the pathological collection of Professor Liston, and a large and very interesting series of old surgical instruments collected by him; an extensive series of vesical calculi, including collections presented by Mr. Liston, Mr. Richard Quain, Sir J. E. Erichsen, Mr. James Arnott, and others; and a number of well-executed wax models by Tuson, illustrating diseases of the skin.

A catalogue of the surgical series, under the editorship of Mr. Marcus Beck, Mr. S. G. Shattock, and Mr. C. Stonham was published in 1887. A new edition of this catalogue was issued in 1906. A catalogue of specimens illustrating medical pathology, edited by Mr. Charles Stonham, appeared in 1890, and one illustrating gynaecology and obstetric medicine by Sir John Williams and Mr. Stonham in 1891.

Upon the incorporation of University College in the University of London, under the Act of 1905, the Faculty of Medicine separated from the College, and became incorporated with University College Hospital as a separate school of medical studies. The buildings necessary to carry out this scheme were provided through the munificence of Sir Donald Currie, and in 1907 the pathological collection was transferred from University College to the new school buildings in University Street.

The Museum of Anatomy of University College contains nearly one hundred special dissections, illustrating the anatomy of all parts of the body, explained by a series of water-colour drawings. There are also preparations of all the joints and ligaments; the original preparations of the arteries by Richard Quain; a large osteological collection, including many specimens showing the growth, development, and variations in the skeleton; and a large number of valuable casts and models illustrative of the topographical anatomy and the development of the body. The anatomy of the various organs and tissues is further illustrated by nearly 500 specimens in spirit.

The Museum of Zoology and Comparative Anatomy of University College was in 1875–6 refitted and arranged under the direction of Sir E. Ray Lankester. It contains a very extensive series of both wet and dry preparations, arranged in zoological order, and carefully selected so as to illustrate all the important variations in the structure of the animal kingdom. The material from which the collection was made is due to the liberality of the late Professor Grant, of the late W. D. Christie, C.B., the late Arthur Grote, the late Sir Andrew Smith, M.D., K.C.B., and other donors; but a large number of the more valuable specimens have been either purchased or presented since 1875. A special series of skeletons and viscera is arranged to illustrate the works of Gegenbaur and Huxley.

The Museum of Botany consists of an extensive series of dry and wet preparations, including collections illustrating the morphology of the vegetative and reproductive organs of flowering plants, and a very fine carpological series, in which the numerous types of fruits are fully illustrated; a series illustrating the chief biological classes of plants—for example, epiphytes, carnivorous plants, climbers, etc.; and systematic collections of Thallophyta, Bryophyta, Pterydophyta, and Gymnospermae. The museum, though of recent origin, contains many of the specimens used by the late Professor Lindley. Many valuable donations have been received from the Royal Gardens, Kew, the Botanical Department of the Natural History Museum, and from former students and others resident in the Colonies.

The late Dr. Thomas Windsor bequeathed part of his medical books and manuscripts to the Library of the Surgeon-General at Washington, U.S.A., and the rest to the Manchester Medical Society. His scientific books he directed should be given to the Owens College library, and his miscellaneous books to the Rylands Library. After making sundry bequests to friends and relatives, he directed his executors to use the residue of his estate (some £20,000) in the relief of suffering in any way which might appear best to them, provided always that they should give nothing to any hospital, dispensary, or medical society or institution, or to any church or to any charity subject to any religious body or sect. He also directed his executors to spend as little as they possibly could on his funeral, and to invite no one to it. He further expressed the wish that no notice of his death should be inserted in the newspapers, and that if it did not involve any extra expense his remains should be cremated. Dr. Windsor retired from practice some twenty years ago. He became M.R.C.S.Eng. in 1853, and L.S.A. in 1854. He was at one time Consulting Surgeon to the Salford and Pendleton Royal Hospital, Ophthalmic Surgeon to Manchester Royal Infirmary, and Lecturer on Ophthalmology at Owens College.

RESEARCH DEFENCE SOCIETY.

THE annual meeting of the Research Defence Society was held at the Royal College of Physicians on June 3rd. Lord CROMER, President of the Society, was in the chair, and there was a good attendance, among those present being Sir F. Lascelles, Sir F. Macmillan, Lady Sheffield, Lady Horsley, Sir Malcolm Morris, Major-General Sir R. Talbot, the Hon. Sydney Holland, Sir James Reid, Mr. Anthony Hope Hawkins, Professor Ferrier, Professor Halliburton, Professor Starling, Professor Cushny, Canon Duckworth, Dr. Theodore Williams, and Dr. Donkin. Expressions of regret for non-attendance were received from Sir Clifford Allbutt, Sir Lawrence Alma Tadema, Mrs. Garrett Anderson, Sir William Anson, Lord Avebury, Sir Thomas Barlow, Lord Bath, Mr. Otto Beit, Mrs. Courtenay Bell, Sir Hugh Bell, Lord Blyth, Sir Lauder Brunton, the Dean of Canterbury, Lord Robert Cecil, the Hon. John Collier, Mr. Francis Darwin, the Bishop of Ely, the Bishop of Exeter, Lord Farrer, Sir Luke Fildes, the Hon. Mrs. Franklin, the Hon. Walter Guinness, Field-Marshal Lord Grenfell, Mr. Vernon Harcourt, Mr. Helby, Mr. Horton-Smith, Mrs. Kersey, Lord Kilmorey, the Bishop of Kingston, Bishop Knight, Sir Henry Knollys, Lord Lamington, Professor Leith, Mr. Henry Lucas, Mr. Holte Macpherson, Lord Malmesbury, Mr. Raphael Meldola, Lady Dorothy Nevill, the Bishop of Oxford, Mr. Marlborough Pryor, Sir William Ramsay, Sir Henry Roscoe, Mr. Ernest Schuster, Lord Sligo, Sir Cecil Clementi Smith, Lord Stalbridge, Lord Stanmore, the Bishop of Stepney, Mr. Marcus Stone, Lady Sutton, Mr. J. G. Wainwright, Lord Waldegrave, the Duke of Wellington, Dr. West, the Bishop of Winchester, and the Rev. H. G. Woods.

ANNUAL REPORT.

The annual report was presented by Mr. SYDNEY HOLLAND, chairman of the committee. It stated that the society had steadily advanced during the past year, both in the number of its members and in the estimation of the public. The membership now amounted to about 3,200; and there were besides 160 associates, making a total of 3,360, being an increase of 800 during the year. Several new branches had been formed. There were now active branches in Birmingham, Bournemouth, Brighton, Cambridge (University Branch), Croydon and Surrey, Devon, Dublin, Edinburgh, East Lothian, Glasgow, Harrogate, the Isle of Wight, Kensington, Liverpool, Newcastle, Oxford, Reading, Shrewsbury, South-West London, and York. Other branches were in course of formation. In many towns where there was not at present a branch there was a corresponding member, who was in touch with the committee. These were Bath, Birkenhead, Coventry, Halifax, Leamington, Manchester, Lowestoft, Southport, Salford, Stoke-on-Trent, Trowbridge, Warrington, and Worcester. During the year sixty addresses and lantern lectures were given in London and elsewhere by members of the society. A new series of popular leaflets, entitled *The Truth about Vivisection*, had been sent out to their associates. A further series of popular leaflets for general distribution was in course of preparation; two had already been published. The quantity of literature thus distributed during the past twelve months had been very large. Reference was made to the fact that the antivivisection societies had lately opened shops in public thoroughfares in London and in other towns. These shops were used to obtain signatures for petitions and to advertise antivivisection meetings. The committee had made arrangements for the orderly distribution of the society's literature outside such shops, and in that way many thousands of its leaflets had been distributed with good results. During the Church Congress last year at Swansea, the society had a stall in the Congress Exhibition and a lecture was given during the Congress week. Similar arrangements had been made for the forthcoming Church Congress at Cambridge this autumn. The committee was informed that the final Report of the Royal Commission on Experiments on Animals would probably be published next month. It would make all arrangements for presenting the facts of the Report to the public. Speaking of the Report of the Royal Commission, he said that whether it was for or against vivisection, the Research Defence Society would accept it.

Sir DOUGLAS POWELL, proposing the adoption of the report, said he thought it deplorable that the society should be necessary in order to defend the good works of a great profession against the machinations of a clique of people who for the moment dominated and misguided another association—a most beneficent association—whose proper work one would think would be to supplement the work of science in its endeavour to diminish suffering and to prolong and save life. It was only within comparatively recent years that the Society for the Prevention of Cruelty to Animals, which had done, and was doing, great service in ameliorating the conditions of domestic animals and beasts of burden, had unfortunately entered upon a wild crusade against science. In doing so it had endeavoured to excite the prejudice of many worthy people, and to exploit the sentimentalism of a great many people who were still very worthy, though perhaps not very wise.

Sir DAVID BRUCE, in seconding the motion, said that it seemed a pity that it should be necessary to meet year after year to affirm propositions which one would think were self-evident—to repeat, for example, that animal experimentation was absolutely necessary for advance in our knowledge of the prevention of disease, or that experimenters did not torture or inflict unnecessary pain on animals; but that, on the contrary, in 999 cases out of 1,000 so-called vivisections there was no pain inflicted—nothing more than the injection of a drop of fluid under the skin by means of a fine hypodermic needle. No less than 97 per cent. of all experiments on animals in this country were inoculations, or experiments of the nature of inoculations, involving no sort or kind of operation on any animal. No operation, more than the lancing of a vein under the skin, was allowed to be done on any animal, except under an anaesthetic. Or, again, to repeat that it was unfair of the opposite party to appeal by caricatures and sensational posters to the emotions of the public rather than to their reason. All this yearly repetition seemed a work of supererogation, a thrice killing the slain, but as long as human nature was constituted as it was, he was afraid it would require to be done. The worst of it was they could not console themselves with the feeling that by bringing forward irrefragible proof of the beneficent results of the work they would convince their opponents. There were people at the present time so constituted as to the nerve cells of their brains that they believed the earth was flat; and many other equally erroneous notions were held just as firmly. It must be remembered that these same people might be very exceptionally endowed in other ways; they might be great thinkers, poets, mathematicians, naturalists, and all that sort of thing; and the only way to explain the phenomena was by saying they are monomaniacs—that is, a particular part of their brain was abnormal, twisted, or imperfectly developed. Else how could it be that there were people who said that consumption was not caused by the *Bacillus tuberculosis*; that Malta fever was not caused by the *Micrococcus melitensis*; that sleeping sickness was not caused by a trypanosome? Would any one of their opponents, who are so loud in print, drink a little of the milk of a goat affected with Malta fever? Or introduce under his skin a single sleeping sickness trypanosome? Or allow an infected tsetse fly to bite him? Not a bit. Sir David Bruce went on to say that in 1903, when they called a meeting of the Uganda chiefs together to explain to them that sleeping sickness was caused by the entrance of a blood parasite into their bodies, that this was carried from the sick to the healthy by the *kivu*, or tsetse fly, and that the way to stop the sleeping sickness was to remove the natives from the fly area, they politely disbelieved them, saying that the fly had always been on the lake shore in their time and in their fathers' time, and that, therefore, it was harmless. Sir David then said to Sir Apolo Kagwa, the Prime Minister, that if he did not believe the fly carried sleeping sickness he should go and sit among them under the shade of the trees on the lake shore, in order to show every one the faith he had in the innocence of the fly. But he answered, "God forbid!" But these same so-called "uncivilized natives," whose untutored minds could not, perhaps, at once grasp the position, a few years later were so convinced of the truth of what was told

them, that they cleared the lake shore and islands of their inhabitants, with the result that, so far as Sir David Bruce was aware, at present not a single new case of sleeping sickness was being contracted in Uganda proper, and the toll of human lives to this plague had ceased to be paid. This toll had been estimated at 200 000 out of a population of 300,000. In one island alone—Buvuma—with a population of 22 000, 18 000 were reported to have perished. What a saving of human life, by the simple means of removing the population from the fly area; and this knowledge acquired mainly by animal experimentation! During the last eighteen months the study of sleeping sickness in Uganda had been continued, and before Sir David Bruce left at the end of last year they had carried out more than 2,000 experiments. It was very important to find out how long the fly remained infective, as on this would depend the repopulation of the lake shore and islands. By animal experimentation it was found that the flies, when once they had sucked blood from an infected animal, might remain infective for at least seventy-five days; and, again, that the flies on the lake shore were still infective, although the natives had been removed some two years before. By animal experimentation it was also discovered that cattle and antelope could be infected by sleeping sickness, and, in fact, they found a cow on the island of Kome which had been naturally infected. They made many experiments to find out if the birds and large mammals, such as the hippopotami, on the lake shore were capable of giving sleeping sickness to man by means of the fly; but although they injected the blood of many water-birds, antelope and hippopotami, into healthy susceptible animals, they never succeeded in discovering an infected animal, with the exception of the cow mentioned. The importance of these experiments was great, as the repopulation of some thousands of square miles of the very fertile land lying along the lake shore depends on the results gained. By animal experimentation they found out the cause and nature of a disease called "Amakebe," which killed 70 to 80 per cent. of the calves born in Uganda. This had eluded all other workers up to the present. The finding out of the true cause and mode of spread of a disease was a big step in its prevention. By animal experimentation they found out the nature of several of the most important diseases of the domestic animals in Uganda, and on more than one occasion nipped an epidemic in the bud, thus earning, if they had known it, the gratitude of the animals themselves. By animal experimentation they found out the nature of a disease among natives in Uganda called "Muhinyo." When the Sleeping Sickness Commission passed through Kampala, the native capital of Uganda, at the end of October, 1908, on the way to their camp at Mpumu, they were informed by Sir Apolo Kagwa, the Prime Minister, that a new disease had broken out in the province of Ankole, and that many people were sick. This was the disease which had been investigated in 1906 and described as beri-beri. At that time it was reported that in one part as many as 25 per cent. of the natives were down with it. In the same year another observer described it as dengue, with persistent joint pains. Again, in 1909, a third doctor investigated the disease, and came to the conclusion that it was kala-azar, the black-death of India. None of these observers used animal experimentation. They used the method of clinical diagnosis. Each one held a different view, and all were wrong. If any one of them had injected a few drops of the blood of one of these cases into a monkey the nature of the disease would have been manifest. Thanks to the kindness of Sir Apolo Kagwa, the Commission had the opportunity of seeing a case of Muhinyo, which was sent to the laboratory at Mpumu from Ankole, a distance of some 200 miles. This man was carefully examined, but as it was an old case nothing very definite was discovered. It was decided to go to the district, and see cases on the spot. In this way some 50 cases were examined. The chief symptoms were fever, profuse sweating, pains and swellings of the joints, and extreme weakness and emaciation. The natives looked like scarecrows. The disease was of long duration, many of them having been ill for several months. Cultivations were made from the blood and spleen of some of the cases, which showed that there was a small micrococcus present very similar to *Micrococcus melitensis*. Monkeys and rabbits were inoculated with this Muhinyo organism, and at the same time animals were inoculated with a strain of *Micrococcus melitensis* brought from Malta. Now, when the organism separated from the Muhinyo cases was tested with the serum of the animal into which the *Micrococcus melitensis* had been injected it gave rise to marked clumping of the micrococci, and when the *Micrococcus melitensis* brought from Malta was tested with serum from the Muhinyo cases the same phenomenon occurred. It was therefore decided that, as the symptoms of the disease were the same, the organism isolated the same, the character of the growth of the organism the same, that both agglutinated with the same serum, the disease Muhinyo was in reality Malta fever; and the curious fact was established that here, on the shores of Lake Albert Edward, in the centre of Africa, thousands of natives were sick of Malta fever, and more than a thousand had been reported as having died from it. Now, as it had been proved beyond the shadow of a doubt that Malta fever was caused in Malta by the drinking of goat's milk, and by that alone, it was a matter of importance to find out if the goats in the affected district also suffered from Malta fever. Last June Sir Apola Kagwa was asked if it would be possible to have a number of goats sent to the laboratory from a place in Ankole where this Muhinyo was common. Sir Apolo said he would try to have them sent. In July twenty-four goats arrived, and were at once examined. Among them the blood of three was found to give the agglutination reaction with the *Micrococcus melitensis* got from a case of Muhinyo, and also with the germ of Malta fever brought from London. One of these animals was then killed and cultures made from its spleen. These cultures grew a micrococcus which had all the cultural and morphological characters of the *Micrococcus melitensis*. Finally, the micrococci were tested as to their power of agglutination with a known Malta fever serum, and were found to react in high dilution. This, then, completed the proof that Muhinyo was Malta fever, and that in Central Africa, as in Malta, the infection was caused by the drinking of goat's milk. In conclusion, Sir David Bruce said a few words about Malta fever in Malta. It was said in the newspapers that goat's milk in Malta was quite harmless, and that the doctors had got rid of Malta fever by simply calling it simple continued fever. This simple continued fever was quite a distinct disease, and had been made the subject of study in Malta during the last year and the present one. In 1908 Dr. Doerr, an Austrian army surgeon, discovered that it was a fever caused by the bites of the common sand-fly, which was so common in Malta during the summer months, and the parasite conveyed from man to man was, like that of yellow fever, so small as to be invisible under the highest powers of the microscope. As none of the lower animals were susceptible to this disease all the animal experimentation had been carried out on man himself. Then soldiers had been found plucky enough to come forward and offer themselves. Colonel C. Birt, Royal Army Medical Corps, who conducted this investigation, wrote:

> Science and humanity owe a debt of gratitude to the self-sacrificing courage and zeal of the gunners of the 99th Company of the Royal Garrison Artillery. When the object of the research was explained to them, they vied with one another in offering themselves as cheerful victims for the sake of mankind. The men of this company are of splendid physique, and they rejoice in rude health, which they maintain by the enthusiastic pursuit of athletics. Those volunteers who were selected for experiment had resided less than a year in the island. They were all exceptionally healthy, strong, and muscular men. The aches and pains during the acme of phlebotomus fever make the sufferer an object of our profound pity. Those who of their own accord knowingly submit to them are martyrs indeed.

In this way it was proved that sand-flies fed on a soldier suffering from simple continued fever and then conveyed by the quickest route to England were capable of setting up the disease in two Royal Army Medical Corps officers in London. Also, that blood taken from a patient and filtered through a porcelain filter could give rise to the disease in healthy men.

This showed that the disease was caused by an ultra-microscopical parasite, and that this parasite was conveyed from the sick to the healthy by the sand-fly. This year the study of the habits of the sand-fly was being pursued with energy, and he hoped that within a short time simple continued fever would have disappeared as completely

from Malta as Malta fever had done. He gave the latest figures for Malta fever as follows:

In 1905, in the army alone, there were 643 cases, and in the navy about the same number.

In 1906	147
In 1907	11
In 1908	5
In 1909	1
In 1910	0

Lastly, it was reported in the daily press that the goats which were taken to America, and were supposed to have set up an epidemic on board the steamship *Joshua Nicholson*, were really quite healthy, and never gave rise to any disease. He had just had a report sent to him by the Board of Agriculture in America, from which it appeared that as soon as these goats were landed they were placed in quarantine and subjected to a most rigorous investigation. The man who brought them from Malta did not believe in the milk theory, and he died. A delicate woman who lived on the station was fed on goat's milk, as it was considered to be very nourishing; she took a severe attack of Malta fever, and also died. The goats, sixty in number, were kept under observation for some two years, those which showed severe infection with Malta fever being slaughtered from time to time. The result was that they had been all slaughtered, as they all developed, sooner or later, this serious human disease. Not one could be saved, although the greatest efforts were made to do so.

Mr. JULIUS BERGHEIM also spoke.

Mr. ANTHONY HOPE HAWKINS said he was glad to become a member of the society. He believed that the speakers of that afternoon were carrying on perhaps the most beneficial work this age had witnessed. He proposed a vote of thanks to the chairman.

This was seconded by Mrs. SCHARLIEB, who, quoting the well known line,

Take up the white man's burden,

said the antivivisectionists were trying to hinder scientific workers from doing this.

The Earl of CROMER, returning thanks, paid a tribute to the unselfish and untiring zeal of Mr. Stephen Paget. Mr. Cobden said that the only way to get an idea into the heads of the British public was to repeat the same thing over and over again in slightly different language. He found that was pretty generally what he had to do. They had to convince the public that those who advocated the progress of science and who endeavoured to prolong human life and mitigate human suffering were the true friends of humanity, and that their opponents who often—he did not doubt with very good but mistaken motives—placed obstacles in their path were not the true humanitarians. For the benefit of the public the society had circulated a pamphlet, containing facts of the same nature and entitled *Recent Surgical Progress*, by Mr. Keen, an eminent American surgeon. The author asked what the friends of experimental research had done, and Lord Cromer summarized his reply. They had discovered antiseptic surgery, and made possible all modern abdominal surgery. They had also made possible all modern surgery of the brain, and had gone far to prevent lockjaw. They had enormously reduced the death-rate in cases of all compound fractures, and in operations for ovariotomy. In some parts of the world, as in the case of the island of Havana, they had practically abolished yellow fever. They had made possible the cure of nearly all cases of hydrophobia; had immensely reduced the mortality in cases of diphtheria, and also in that terrible disease, cerebro-spinal meningitis. They had shown the cause and method of propagation and of prevention of the deadly malaria which devastated whole regions and armies. They had reduced the mortality from tuberculosis by from 30 to 50 per cent, a reduction due to the discovery made by the great German scientist whose death not only his native country but the whole civilized world had recently had cause to mourn. Moreover, not only man, but the brute creation had reaped enormous benefit from their humane researches, for the causes of tuberculosis, Texas fever, anthrax, glanders, and other infectious diseases of animals had been discovered, and their progress has in many cases been successfully arrested. He had not nearly exhausted the list, but was not that a noble record? Mr. Keen then asked what the foes of experimental research had done, and he answered in tones vibrating with justifiable indignation: "Nothing but to stand in the way of progress. Not a single human life has been saved by their efforts; not a single household made happy; not a single disease has had its ravages abated or abolished." He was quite prepared to leave the society's case there, asking any impartial person, whether professional or non-professional, to compare that noble record of humane work with the sterility of their opponents. They were probably aware that a bill was recently introduced into the House of Commons by Sir Frederick Banbury and Sir Francis Channing, having for its object the total prohibition of experiments on living dogs. The love of dogs was not confined to antivivisectionists. He dared say that many members of the Research Society were as fond of dogs as he was himself, but when they were asked to express approval of legislation of that nature they had to inquire whether, putting aside sentiment, the proposal could be justified. He thought no such justification could be found. In the first place, if dogs were to be exempted why not cats, horses, guinea-pigs, and other animals? In the second place, they had it on the highest professional authority that the use of the dog was indispensable for the furtherance of their knowledge as regarded many functions of the body. Further, a very large number, he believed some 20,000, stray dogs were annually put to death in London through the instrumentality of the lethal chamber in the Battersea Dogs' Home. He was unable to give the exact number of dogs used annually for experimental purposes in this country, for the official returns did not specifically distinguish between dogs and other animals. But it might confidently be asserted that the number had to be reckoned not by thousands, but by hundreds, and that by far the greater portion of these were put to death in a manner as painless as that adopted at the Battersea Dogs' Home. The only result, in fact, of the passing of the bill would be that a few hundred dogs a year more would pass into the Battersea lethal chamber. For these reasons he thought it was the duty of all connected with the society to offer whatever resistance they legitimately could to the passage of the measure. If it ever reached that menaced branch of the Legislature to which he belonged, he should certainly do his utmost to oppose it. There was another bill which had been prepared by Mr. Stephen Coleridge, and he (Lord Cromer) could not do better than illustrate his views upon it by a historical anecdote. It was related that in 1802, when the country was threatened by invasion from France, a large number of Volunteer corps were formed. Amongst others, the Articles of Association of one corps in the neighbourhood of the Cinque Ports, of which Mr. Pitt was then the Warden, was submitted to that statesman. It was a very elaborate and detailed document containing a great number of carefully worded provisions as to how, when, and where the Volunteers were to be employed. The words "except in case of actual invasion" frequently occurred. At last, towards the close of the document, Mr. Pitt came across a provision which was to the effect that under no circumstances whatsoever was this corps of Volunteers ever to be sent out of the United Kingdom. Mr. Pitt lost patience and added to the clause "except in the case of actual invasion." That was very much the treatment which animal experimentation received from Mr. Stephen Coleridge. His bill professed to permit it, but surrounded it with such an enormous number of conditions as to render it impracticable to work and altogether ineffective for research. Without going into its details, one point would show the spirit in which it was drawn up. In one clause it was provided that no one was to be allowed to conduct any experiment unless he could obtain a certificate signed by at least one justice of the peace and a clergyman, stating that he had a reputation for humanity. He thought such a proposal was almost unique in our legislative annals. What standard of humanity was to be adopted? A justice of the peace who was a member of the Antivivisection Society would adopt one standard, and the justice of the peace who was a master of hounds, for instance, would adopt a very different one. The proposal was really absurd, and of itself was almost sufficient to laugh the bill out of court. Could it be reasonably suggested that an eminent man like Professor Starling was to be compelled

to go and look about for a justice of the peace and a clergyman who would give him a certificate for humanity? If that was to become law he would suggest a very useful amendment. It was that no one, even in this free country, should be allowed to speak against vivisection unless he could produce a certificate signed by at least two judges and a brace of bishops that he had a reputation for common sense and accuracy of statement. In conclusion, Lord Cromer said he was told that the Report of the Commission would probably be issued in July, but the long delays which had already occurred precluded him from entertaining any very sanguine hope that this expectation would be realized. He was sure, however, that when it was issued it would be a very valuable document, and that it would receive the utmost attention from the general public, and from none more than from every member of the Research Society.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.

The annual general meeting of this society was held on May 26th, Dr. Blandford, President, in the Chair.

The annual report stated as follows: During the past year 19 new members were elected; 10 died and 4 resigned. The society consists at the present time of one honorary member, 142 life, and 149 ordinary members, making a total of 291, which, considering the number of medical men who are eligible for membership, is a very small proportion. The invested funds amount to £100,550, from which was derived in interest the sum of £3,124 18s., £350 9s. 6d. being received in subscriptions and donations. Amongst the annuitants of the charity, namely, 48 widows and 13 orphans, the sum of £3,018 was distributed, each widow receiving on an average £50, besides an additional £10 as a Christmas gift, and each orphan £12 and a gift of £3 at Christmas. The Copeland Fund is a special fund which enables the society to grant to any widow or orphan already in receipt of the society's ordinary relief, extraordinary assistance in special circumstances of unusual distress, such as blindness, paralysis, insanity, severe disabling accident or grave permanent disease, and to continue such extra relief in the case of orphans beyond the age of 16 or 18 years (at which under the society's existing by-laws, the ordinary relief ceases) for such further period as the Court of Directors may think fit. During the year three widows in receipt of grants died. One of these, whose husband had paid in subscriptions £6 6s., had received £2,900. Two widows were elected during the year, and on December 31st there were 47 widows and 14 orphans in receipt of grants. One of the widows has been on the books since 1854, and has already received over £2,250.

Relief is only granted to the widows and orphans of deceased members who have paid their annual subscription for three years or who are life members. During the year nearly fifty letters were received from widows of medical men, who, in many instances, had been left practically penniless, asking for relief, but this had to be refused, as their husbands had not been members of the society. The directors cannot too strongly urge upon the members of the medical profession, especially the younger, the desirability of joining the society. Membership is open to any registered practitioner who at the time of his election is resident within a 20 mile radius from Charing Cross. Should any member remove beyond the limits of the society he nevertheless continues to be a member.

The annual subscription is two guineas; every member who has paid this sum for twenty-five years becomes a member for life. Life membership may also be obtained by the payment of one sum, varying with the age of the applicant.

A cordial vote of thanks was passed to the editors of the various medical journals who from time to time insert notices of the society.

The meeting closed with a vote of thanks to the chairman.

Further information can be obtained on application to the Secretary, 11, Chandos Street, Cavendish Square.

SCIENCE NOTES.

In a paper on the metabolism of development Murlin[1] deals with the energy metabolism in the pregnant dog. He finds that when only one embryo is present the increase in the total energy production due to pregnancy is not evident until the sixth week of gestation (the total duration of gestation in the dog being about nine weeks). In the next fortnight an increase of nearly 10 per cent. is observed. When estimated a few days before parturition the energy production of pregnancy is found to be proportional to the weight of the offspring at birth. This was determined in two different pregnancies of the same dog, in the first of which one, in the second five, pups were born. The extra energy production near the end of pregnancy is nearly equal to the energy requirement of the new born. This is calculated upon theoretical considerations according to Rubner's law of skin areas. Thus, if a pup weighed 280 grams at birth it would be calculated to weigh 240 grams three days before, and from another formula its metabolism then would be 45.4 calories. In the same way the author calculates that the extra energy production of mother and offspring the first day after parturition is from two to three times the extra energy production of pregnancy three days before parturition.

Few are not familiar with the favourite circus turn of the highly intelligent horse or dog which performs truly remarkable mental feats at the bidding of its master, and the doubt has often arisen whether what was being witnessed was only a clever trick or the evidence of an ability in such animals to appreciate matters of an abstruse nature. It is so difficult to imagine the psychological processes of the lower fellow-creature that one is disinclined to deny without reserve the possibility of the occurrence of even the simple mental powers. Of such the appreciation of numbers lends itself most easily to observation. A clear distinction must, however, be drawn between the ability to recognize a printed or a spoken number, and the power of counting and of connoting perceptible things with the abstruse idea of numbers. Many animals can be taught to attach definite meaning to sounds or words whether they be numbers or anything else. It is on this fact that most of these circus tricks are based, and it is this, also, which has led some to the belief that certain animals are capable of counting. The subject is discussed by Coupin in a short note in *La Nature*. He relates a number of stories from various sources, chiefly about dogs. One of these tells of a dog which in the course of several days stored away 26 bones. One day it was not fed, and it had recourse to its buried treasures. It unearthed and feasted on 25 of the bones, and then lay down to sleep; but hardly had it done so when it awoke with a start and proceeded to obtain the last bone. This was regarded by the narrator as an instance of the power of counting even as high as 26; but it is evident that a different interpretation is not difficult. Delboeuf tells three stories of dogs he tried to initiate into the mysteries of elementary mathematics. One was offered the choice between 3 and 4 pieces of sugar, and compelled to make the former. After a time, however, it became so frightened even at the preparations for this demonstration that it displayed the picture of abject terror, and, as Delboeuf quaintly remarked, it showed no disposition towards mathematics. To another he offered a piece of liver, but did not allow it to touch it till he had counted four. This succeeded quite well; but if he counted *one, three, four* the dog immediately took the piece. If he counted *one, two, one, three, four*, the piece was again taken. Evidently it was the sound of the word *four* which the dog recognized as the signal to start eating. The third dog was taught to bring wood into the house, a labour very much to its liking. Five pieces were sufficient every day. One day the dog was left alone in the house, and, compelled by an urgent sense of duty, it proceeded to bring in wood. This it did with such zest that on Delboeuf's return he found the house full of wood. Jacquot instances, as a proof that monkeys are able to count, the case of certain predatory monkeys in the Transvaal, which by experience have learnt that parties of hunters or natives usually consist of four. So it has been noticed that they never start pillaging before they have witnessed the

[1] *Amer. Journ. of Physiology*, April, 1910.

departure of four men from the hut or farmhouse. To circumvent this, larger parties are formed, of which four take their departure. The marauders immediately descend, and naturally fall victims to an overweening belief in their mathematical ability. Such is the story. Of the other anecdotes adduced as positive evidence Coupin frankly disbelieves the greater part; and, indeed, they are all rather weak.

LITERARY NOTES.

PROFESSOR BERRY, of the University of Melbourne, proposes to publish a *Clinical Atlas of Sectional and Dissectional Anatomy*, and is negotiating with publishers in Great Britain, who state that if they are assured of the sale of 100 copies of the work in Australia, the arrangements will be expedited. Up to the time of writing 100 copies have been applied for in Australia. Among those who have agreed to assist are Professor H. B. Allen, of the University of Melbourne; Professor Osborne, of the University of Melbourne; Professor Spencer, of the University of Melbourne; Professor Stirling, of the University of Adelaide; Rev. E. H. Sugden, of Queen's College, University of Melbourne; Dr. G. A. Syme; and Professor Wilson, of the University of Sydney. The honorary secretary is Dr. J. W. Barrett, 105, Collins Street, Melbourne.

We all speak of the psychological moment; and we all doubtless think we know what the expression means. But if we are to believe the Oxford *Periodical* we do not. Discussing the subject, our informing contemporary quotes the following passage from Sir James Murray. This (the "psychological moment") is equivalent to the French *moment psychologique* "applied to the moment in which the mind is in actual expectation of something that is to happen" (Hatzfeld, *Dict. Général*); the psychologically (or rather, *psychically*) appropriate moment, often misused for "the critical moment," "the very nick of time," without reference to psychology or to the mind. The French expression arose in Paris in December, 1870, during the siege, when it was asserted to have been used by the German *Kreuz-Zeitung* in reference to the bombardment of the city, and explained to mean that, as the bombardment had as its aim to act upon the imagination of the Parisians, it was necessary to choose the very moment when this imagination, already shaken by famine and perhaps by civil dissension, was in the fittest state to be effectively acted upon. (Sarcey, *Le Siège de Paris*, 1871, p. 263; Eng. trans. p. 242.) But the phrase with its explanation was due to an error of translation, in which the expression actually used by the German journal, *das psychologische Moment*, the psychological "momentum," potent element, or factor, in the case was mistaken for *der psychologische Moment*, the psychological moment of time. The article in the *Neue Preussiche [Kreuz] Zeitung* of December 16th, 1870, p. 1, col. 3, says that very cogent psychological considerations spoke against opening the bombardment before the hopes built by the Parisians upon the raising of the siege by armies of relief should be overthrown; and continued, "in all considerations the psychological momentum or factor must be allowed to play a prominent part, for without its co-operation there is little to be hoped from the work of the artillery." Thus attributed to German pedantry, the nonsensical *moment psychologique* was ridiculed by the Parisians, and became a jocular phrase or "tag" for the "fitting or proper moment"; and with this connotation it has passed equally nonsensically, Sir James Murray says, into English journalese. Without presuming to question Sir James Murray's interpretation of the expression, we venture to point out that "psychological moment" has a perfectly clear meaning, apart altogether from "momentum." Every one knows, for instance, that there are right times or wrong times for speaking to a person. A favour is more likely to be granted if it is asked when a man is in good humour, as after dinner. On the other hand, a wise man would ask nothing of a person in the throes of indigestion or gout. There are, the experienced say, "moments"—not "momenta"—when ladies are more yielding than at ordinary times. The French proverbial phrase, *L'heure du berger*, expresses this fact. No one knows better than Sir James Murray that words and phrases may come to have a meaning altogether different from what may be called their face value. Of this "psychological moment" is an instance, and with all respect we deprecate its being stigmatized as nonsensical journalese.

To most people the name of the Chiltern Hundreds is associated with the retirement of a member of Parliament while the Legislature is in session. It is, in fact, nothing more than a political expression. How many of us who have not had a board school education could say offhand what or where these famous "Hundreds" are? To the many who could not answer this conundrum we commend the perusal of a paper read by Dr. Clippingdale before the Royal Society of Medicine in January, 1910. It has lately been reprinted by John Bale, Sons, and Danielsson, Limited, under the title of "The Chiltern Hills and Dales in certain of their Natural and Medical Aspects." The Chiltern Hills are a range of chalk downs lying to the west, north-west, and north of London. "In shape," says Dr. Clippingdale, "they form an irregular quadrant, the mean radius of which is about thirty miles from the centre of London. The south-west extremity of this quadrant is at Streatley in Berkshire; the north-east extremity at Luton in Bedfordshire. Between these extremities the range of hills passes through the counties of Oxford, Buckingham, and Hertford." It is only with the portion contained within the County of Buckingham that Dr. Clippingdale deals. "The length of the entire range is some seventy miles. The breadth varies from the narrowest limits to a span of about twenty miles. The slope of the hills varies; towards the south-east they slope gradually until they merge in the valley of the Thames; towards the north-west they end in a rather bold escarpment overlooking the Vale of Aylesbury." The great healthiness of the district is, according to Dr. Clippingdale, due in part to the fact that there is no higher ground between the Chiltern Hills and the East Coast, so that air coming from the North Sea passes north of London and so reaches the Chilterns cold and pure, although it drops salt on its way. Dr. Clippingdale deals exhaustively, not only with the geography, but the geology, orography, scenery, fauna and flora, meteorology, ethnology, and even the economics of the region. Under the head of Health he gives an account of the epidemics and hospitals at Amersham, Aylesbury, Beaconsfield, Chalfont St. Giles, Chesham, Great Hampden, Wendover, Wycombe, and other places within the purview of his paper. With regard to the present day, we learn that the mortality from diseases of the respiratory system is only 1.7 per 1,000, as compared with 37 per 1,000 for the whole of England. Buckinghamshire was formerly third among the counties of England in respect of frequency of stone in the bladder owing to the large amount of chalk in the water. At the present time the disease is almost unknown in the county. On the other hand, cancer is common, especially in the valleys. Goitre is common; reference is made to Mr. James Berry's discovery that the softening of hard water by Clark's process, while diminishing the prevalence of calculus, increases the tendency to goitre. Rheumatism is rather above the average in frequency in the valleys, rather below it on the hills. Although consumption is fairly common in Buckinghamshire generally, it is rare in the Chiltern district, except as an imported disease. The general death-rate as compared with that of rural England is as 12.5 to 14.7. Length of days is common among the inhabitants.

THE Medical Golfing Society held its annual tournament on June 2nd at Burnham Beeches, by kind invitation of the Burnham Beeches Golf Club. The Henry Morris challenge cup and the Medical Golfing Society's gold medal were tied for by H. A. Seagrove (12) and J. C. Briscoe (15) with 4 up, H. A. Seagrove taking the first prize in Class 1 and J. C. Briscoe the first prize in Class 2. The second prize in Class 1 was tied for by C. M. Anderson (5), C. J. Marsh (10), and E. T. Robinson (10) with 3 up, while that in Class 2 was won by W. H. Kelson with 1 up. The prize for best last nine holes in Class 1 was tied for by K. Goadby and G. C. Bell (2 up), and that in Class 2 by C. F. Winkfield and Canny Ryall (2 up). The Foursomes sweepstakes resulted in six ties, G. C. Bell and H. H. Brown, F. Juler and L. Paton, C. M. Anderson and J. R. Walker, W. B. Reid and S. B. Christian, C. I. Graham and C. W. M. Hope, A. S. Cobbledick and G. B. Scott all being 1 up.

British Medical Journal.

SATURDAY, JUNE 11TH, 1910.

COLLIERY EXPLOSIONS FROM THE MEDICAL STANDPOINT.

THE important paper by Dr. Lister Llewellyn in our issue of to-day on the explosion at Darran Colliery, South Wales, places clearly before the profession a number of important points in connexion with colliery explosions. Dr. Llewellyn made a careful external examination of the bodies of the men killed, and also obtained from survivors and rescuers a detailed account of their symptoms and what happened to them. He also pieced together the evidence as to what happened to each of the men who were involved in the explosion or exposed to the after-damp. Owing to the existence of a communication with a neighbouring colliery a large proportion of the men escaped, and more information was thus obtainable from survivors than after any other recent explosion.

One of the most salient facts brought out is that the whole of the deaths in the pit were due to carbon monoxide poisoning. The explosion was a typical coal-dust explosion, occurring in the typical manner on the main road for haulage and intake of air. It was caused, like so many other explosions, by blasting at a dusty place, contrary to regulations. The flame traversed about 600 yards of the main road, and left this part of the road filled with poisonous air, the ventilation being at the same time brought to a standstill owing to the destruction of doors between the intake and return airways. The men involved in the explosion were thus left in poisonous air, and the rescuers who went to their help were also in great danger.

Of the splendid courage and determination shown by the rescuers their countrymen have good reason to be proud. Dr. Llewellyn's account makes it clear that of the twenty-six men who perished in the pit, eleven, or possibly twelve, including the manager and several officials, died in trying to help their comrades, while many others risked their lives again and again. With the first rescue parties were two members of the medical profession—Dr. Turner in one party of three, of whom the other two succumbed, and Dr. Thomas in another party. Dr. Turner dropped, and remained unconscious for about eight hours.

The circumstances of the explosion present a vivid picture of the extreme danger caused by an atmosphere containing carbon monoxide. Time after time men dropped without previously noticing any symptoms to warn them. Their lights burned brightly, and were thus quite useless in indicating the danger. Unfortunately, no one seems to have known how to test the air. In Dr. Haldane's Report to the Home Secretary on the Causes of Death in Colliery Explosions, published in 1896, it was shown that nearly all the deaths are due to carbon monoxide poisoning. A practical means of testing for carbon monoxide was also described, the test being to watch the symptoms of a small warm-blooded animal, such as a mouse or small bird. Owing to the extremely rapid metabolism of the small animals, they show symptoms of carbon monoxide poisoning in a mere fraction of the time required for a man to be affected. In some colliery districts this test is now well known, and is frequently made use of in connexion with underground fires and explosions. Practical experience has also shown that the symptoms of a small bird carried in a cage provided with a perch are easier to appreciate than those of a mouse. Instructions on this point, and on the properties and sources of carbon monoxide, ought to be included in all ambulance courses for miners. Another important matter in connexion with ambulance courses for miners is instruction in the Schäfer method of artificial respiration. In ease of performance, simplicity, and efficiency, Schäfer's method has enormous advantages, particularly important in the difficult circumstances under which rescue work has often to be carried out in mines.

The Darran Colliery was not provided with rescue apparatus for penetrating foul air, nor was any such apparatus available in the district. It seems probable that if apparatus and trained men had been promptly available, some of the men might have been saved. At any rate the work of exploration could have been rapidly and safely carried out, and much delay in restoring the ventilation and bringing fresh air to the injured or unconscious might thus have been avoided. There is doubtless much popular exaggeration of the advantages to be derived from rescue apparatus. Owing to blowing out of timber and consequent heavy falls of loose stone it is often very difficult to penetrate along roads which have been traversed by a mine explosion. To carry men out is thus slow and difficult work, particularly if the rescuers are hampered with heavy and complicated apparatus. Nevertheless the advantages to be gained by the provision of rescue apparatus are substantial. With their help the seat of an explosion can be rapidly explored; fires consequent on an explosion can be extinguished before they become serious and cause further disaster such as that which befell the Whitehaven Colliery; men who are cut off by an explosion or fire can be guided to safety; and much other useful work can be accomplished. If the seat of the Darran explosion could have been rapidly explored with the help of rescue apparatus the manager would probably have decided to block the top of the downcast shaft and open the door communicating with the neighbouring colliery. The action of the fan would then rapidly have cleared the pit of after-damp, and many of the men might have been saved. It is to be hoped that every colliery will soon have rescue apparatus available on the spot or within easy distance, and from Mr. Churchill's reply to the deputation which waited on him on Wednesday this would appear to be the desire of the Home Office.

At the Darran and Whitehaven explosions rescue apparatus would have been of great use had they been promptly available. In many other colliery explosions, however, little could have been accomplished with their help, or, indeed, by any other known means. The main thing, therefore, is to prevent explosions from occurring. An enormous amount has been accomplished in this direction during recent years by precautions and regulations with regard to blasting, the use of safety lamps, proper ventilation, and strict discipline. Watering the coal dust has not proved generally successful, but the very important experiments in the great experimental gallery erected in Yorkshire by British coal owners seem to show that an admixture of shale dust can be advantageously used to render coal dust inexplosive. The general public, who read the ridiculous "colliery warnings"

which appear in the newspapers, have little knowledge of the care and thought which mining engineers are devoting to the whole subject of colliery explosions. In devising and organizing means for minimizing the loss of life in colliery accidents the medical profession can give most important help, and we are confident that this help will always be freely forthcoming.

SUBACUTE COMBINED DEGENERATION AND SEVERE ANAEMIA.

THE combination of a severe anaemia with symptoms of degeneration in one or more of the nerve tracts of the spinal cord was first recorded in 1884, when Leichtenstern reported cases of "progressive pernicious anaemia in patients with tabes." Such cases are not rare, and since that date reports of a good many have found their way into the literature. To mention a few of the authors—Dana, Putnam, and Grinkler have written about the condition in America. Risien Russell published a paper on it in 1898, and in 1900 a highly important contribution to our knowledge of it was made by Risien Russell, Batten, and Collier, who also gave the disorder its now generally recognized title of "subacute combined degeneration." In 1901 similar cases were published in America as instances of "combined sclerosis of the Lichtheim-Putnam-Dana type accompanying pernicious anaemia." During the last nine years there has been much written about the syndrome, and the present issue of this JOURNAL contains the two latest contributions to its literature.

It is not without interest to trace the evolution of what is now known as "subacute combined degeneration." In the first instance, its pathological picture appeared fairly straightforward. Leichtenstern's patients were said to have tabes dorsalis on the one hand, pernicious anaemia on the other. Further experience, however, has considerably enlarged the bounds of the disease. Thus in 1886 Gowers described a new nervous disorder under the name "ataxic paraplegia," and in all probability some of his cases were instances of subacute combined degeneration with unobtrusive and unrecognized anaemia. Thus a variability in the nervous symptoms of the disease was soon admitted, and there can be no doubt that a great variety of nervous phenomena may occur in different cases, or in the same case at different periods of its progress. The signs will naturally depend on the distribution of the cord lesions. Thus spasticity will be the main feature if the pyramidal tracts are most involved, spasticity and ataxia if both the lateral and the posterior tracts are affected, flaccid paralysis with loss of the deep reflexes if the degeneration is mostly in the fibres of the posterior columns of the cord. As a matter of fact it often happens that the spastic paraplegia originally present becomes replaced by flaccidity in the later stages of the disease, the change indicating involvement of the pyramidal fibres. The lower extremities suffer most if, as is usually the case, the degeneration is most marked in the dorsal or the dorsal and lumbar cord. But in rarer instances the arms have been chiefly affected, and then the degenerative changes are found to have occurred mainly in the cervical region; as Dr. Collier has remarked, lesions higher than the mesencephalon have not yet been found. A similar variability in the morbid changes in the blood must also be admitted. In Leichtenstern's patients, as in those of Dr. Byrom Bramwell and Dr. Hale White, progressive pernicious anaemia was present, by which is meant the severe specific infective, or Addisonian, anaemia of Dr. William Hunter. Indeed recognition of the connexion between pernicious anaemia and combined cord degeneration was so thorough in America some five or six years ago, that patients suffering from the former disease were arranged, for teaching purposes, into three classes—those with no nervous symptoms, those in whom the nervous symptoms came on after the anaemia, and those in whom the nervous symptoms appeared before the anaemia. This classification at least serves to indicate the frequency with which subacute combined degeneration may be expected to occur. In the majority of cases, however, the anaemia has been of a severe secondary type, and not Addisonian. In a few instances, particularly those in which the course of the combined degeneration has been rapid and the issue fatal, the blood count and blood picture have been normal throughout. Originally the anaemia was believed to cause the nerve degeneration. But at the present time it is held that both are the results of a common cause, the action of some toxin. The first view is clearly untenable now that it has been shown that the nervous troubles may precede the anaemia, and may even be exhibited by patients with normal blood. The nature and source of the hypothetical toxin remain undetermined. In many cases, no doubt, it has its origin in the chronic infection of the mouth and gastro-intestinal system, upon which Dr. William Hunter lays such stress in his account of the pathogenesis of progressive pernicious, or, as it is better entitled, "Addisonian anaemia." It must be remembered that degenerative changes in the peripheral nerves, spinal cord, or brain may be found in almost any case of profound anaemia; many of them, no doubt, are terminal lesions, small in extent, and not productive of any clinical evidence of their presence, or, perhaps, resulting only in the symptoms of so-called functional nervous disorder.

As has been pointed out already, much attention has been directed of late years to the connexion between severe anaemia and subacute combined degeneration. Wider views are taken, and what at first seemed a rare combination is now shown to exist fairly frequently. In the same way the lapse of time has shown that the course of combined degeneration is often chronic, extending over four or five years. If the anaemia is marked, the earlier stages of the degeneration are likely to be overlooked, the patient's complaints of stiffness or weakness in the legs, or of anaesthesiae or various paraesthesiae of the stocking-and-glove variety about the limbs, being set down as evidences of functional or neurasthenic disorder. On the other hand, if the anaemia is not a prominent feature of the case, the partially correct but incomplete diagnosis of spastic paraplegia or of tabes dorsalis may be made on the evidences of the nervous symptoms. Dr. Byrom Bramwell's case illustrates to perfection how combined degeneration may imitate disseminated sclerosis, while Dr. Hale White's proves conclusively the dangers attaching to the hasty diagnosis of functional nervous disease. In addition, the former writer has brought into prominence the important circumstance that optic atrophy and temporary recoveries may occur in combined degeneration, just as is known to happen in Addisonian anaemia. Both Dr. Byrom Bramwell and Dr. Hale White note the fact, apparently never previously recorded, that the large deposits of inorganic or free

iron so characteristic of pernicious anaemia may be found in the liver and other viscera of patients dying from subacute combined degeneration.

INSURANCE.

We commend the letter from the Treasurers of the Medical Sickness Society, published at page 1439, to the attention of readers, for it well deserves careful study. The business of insurance is precisely on all-fours with any other business in which one person sells and another buys. The buyer gets just as much or as little as he chooses to pay for. There may be slight variations in the price one vendor charges as compared with the price another vendor charges. One vendor may be able to produce more economically, usually because he works on a larger scale, or because he is content with a smaller profit than another, though this is rare. The rule is that the vendor who tries to undersell a rival gives the buyer an inferior article or a smaller package. An enterprising grocer may advertise that he gives away a teapot with a pound of tea, but he does this either as an advertisement, or he recoups himself by charging for the tea as much as both tea and teapot are worth. If he does it as advertisement, the cost has to be debited to his trading account, and he must ultimately recover it out of his customers; if he does not he becomes bankrupt, and there is an end of the free teapot. A very large part of the total expenses of many traders is for the cost of advertisement, and it is as clear as the sun at noonday that in the long run the buyer pays for such advertisement in the increased cost of the commodity; usually he has not a very long run for his money. Most people, if they think about the matter at all, will quickly reach this conclusion; in the application of the principle to the business side of the practice of medicine we very reasonably tell the public that if they want good service they must pay a proper price, or accept the service as an act of benevolence or charity.

When it comes to insurance, however, it seems strangely easy to persuade people that they are getting something for nothing, which, except in the way of actual benevolence or inheritance, nobody ever does save casually or, as it were, accidentally, never certainly as a matter of business. Insurance is a matter of business, and even when, as in the case of the Medical Sickness Society, the business is carried on not for the individual gain of shareholders but for the mutual benefit of the insured alone, the business must be conducted on sound actuarial principles, the only difference being that the profits which would be paid in dividends to the shareholders are utilized for the benefit of the insured either by charging lower rates to cover the risks or for distributing in the form of bonuses. Adequate reserve funds must be accumulated to meet contingent claims. It is the experience of insurance companies, as of all other human undertakings, that demands on their resources occur irregularly—

> When sorrows come, they come not single spies
> But in battalions.

This is true even for fire or accidents. The doctrine of the average finally vindicates itself, but in the case of sickness and life business special provision must be made in forming the reserve fund to meet the growing incidence of sickness and death, which inevitably increases as the age of the insured increases. Therefore, those who undertake insurance—and not least those who go into the business of insurance from a sense of duty to their profession—must work upon strict business lines, and in fixing the rates to be charged for the benefits offered must be guided by the calculations of the actuaries. No idea of philanthropy must be allowed to intrude; philanthropy, and providence by way of insurance, both have their field of activity, but they are at opposite poles.

A policy of insurance is a contract, and nothing not within the four corners of the contract is to be expected by the contractee (the policy holder). Therefore, it becomes very necessary to examine most carefully the exact words of the contract, what it promises, and under what conditions and provisos, and with what exceptions. Accident policies are offered, either free or more commonly on small payments, such as 6d., as an extra inducement to buy a newspaper or a diary, or some other commodity. We do not for a moment suggest that any of these are not quite *bona fide*. On the contrary, those we have examined have all been guaranteed by a responsible insurance company, and we have no doubt that any claim made in strict compliance with the conditions set out in the policy would be met. One such offer which is before us states that if the applicant sends 2d. and a stamped addressed envelope, he or she will receive a coupon insurance ticket entitling the insurer's personal representative to £1,000 if the insurer be killed by an accident to a railway train in which he or she is travelling as a ticket, or pass-bearing, or fare-paying passenger. If 6d. is sent with the stamped addressed envelope the coupon insurance ticket would ensure the above benefit and a similar benefit if the insurer be killed in an omnibus, tramcar, or cab driven by a licensed driver plying for public hire, in which he or she is a fare-paying passenger; or the sum of £500 for the loss of two eyes or two limbs or one eye and one limb; or of £250 for one eye or one limb; or if not entitled to claim under any of the above heads, then to £2 10s. a week for a period not exceeding five weeks if totally disabled and confined to the house by an accident as defined, that is, in a public vehicle in which the insured is travelling as a fare-paying passenger. For 1s. 6d. the insurance will be extended to include passenger steamers, and to any place within the limits of Europe. We do not question the perfect fairness of these conditions; we take the document as the first at hand, and as illustrating very well the gradual increase in the amount the insurer must pay in direct proportion to the benefits for which he desires to insure, and how precisely the risks insured against are defined. For example, if in the case of the policy cited the insured was a passenger, but not a fare-paying passenger, in an omnibus, or cab, it would appear that he would not be entitled to compensation, nor apparently would the policy cover an injury sustained by a passenger in a railway station waiting for a train in consequence of an accident to any train coming into or going out of the station.

The necessity for examining carefully the conditions under which policies are issued is well illustrated by a case which was brought to our notice recently. The assured had a policy covering sickness due to, among other diseases, diphtheria and scarlet fever; he was taken ill, and was admitted to a fever hospital, the diagnosis between diphtheria and scarlet fever being doubtful; it proved to be a slight attack of the latter. On leaving the

hospital he applied for compensation under his policy, but was informed that he had no claim as he had not notified his illness and its nature within three days of the notification to the Public Health Authority. He stated that the reason for not giving earlier notice was that the exact nature of his illness was not determined till he had been in hospital for some time, and that while in hospital he was not allowed to write letters; but the proviso of the policy was quite plain, and it was clear that not having exactly fulfilled the stipulated conditions he had no claim under it.

The point that the insurer can only expect to get exactly what he pays for is illustrated on a larger scale by a statement in the letter of the Treasurers of the Medical Sickness Society; one of the reproaches addressed to the management of that society is that all benefits cease at the age of 65. This, at first sight, may seem a harsh provision, and were the society a philanthropic society would be harsh. But the society is not philanthropic; it can only give its members what they pay for; and they have paid only for certain specified advantages.* The Treasurers tell us that the question of extending the benefits beyond the age of 65 has been discussed by the Committee; it was found on actuarial investigation that to extend the benefits to the age of 70 it would have been necessary to require the members to pay nearly double as much as they now do for the benefits which they are actually entitled to receive. The rates of the society, of course, vary according to the age of the applicant, and it is almost of the essence of personal insurance that the provident man who takes this precaution early in life enjoys protection at a cheaper rate than he who enters at a more advanced age. This is one fact out of many which should impel a man when he is entering on the practice of medicine to insure at once. There is also the consideration that the consequences of being laid aside by sickness or accident are apt to be even more disastrous to a young practitioner than to one who is already well established or associated with others in partnership. Incidentally we may refer to the instructive fact that during 1908 the claims on the Medical Sickness Society represented nearly 27 per cent. of the membership—that is to say, with a membership of 2,723 the number of sickness and accident claims was 726, the large majority being for sickness.

The art of the actuary is a good example of applied science. It is the application of certain principles of mathematics and vital statistics to particular problems concerning the duration of life, or the frequency and severity of sickness and accidents, considered in relation to the interest which can be obtained for money in the money market. Without claiming that anything like finality has been reached, it may be said without fear of contradiction that a very high degree of accuracy has been reached, and that the forecasts of the actuaries, which are continually being tested by time and the vicissitudes of human life, have come triumphantly out of the test.

THE ACCURACY OF THE *MEDICAL REGISTER*.

FROM time to time complaints are heard from medical practitioners who find that their names have been omitted from the *Medical Register* under the provision of Clause 14 of the Medical Act, 1858, which empowers the Registrar to erase the name of any person who does not reply to official inquiries asking whether he has ceased to practise or changed his residence. It is, however, of the first importance to the medical profession that the *Medical Register* should be correct, and provided that the General Medical Council takes reasonable care, exception cannot be taken to the due exercise of the powers given to the Registrar under the clause referred to. For some time past it has been the custom to correct the *Medical Register* twice in five years—once on the occasion of the election of direct representatives, and again by means of circulars sent to one-third of the persons on the *Register* in each of the three years intervening between the quinquennial elections. As notwithstanding this many inaccuracies were known to exist, a careful revision of the *Register* was put in hand in the autumn of 1908. The precautions taken were fully described in the report of the Registrar published in the SUPPLEMENT to the JOURNAL of May 28th, 1910, p. 312. They seem to have comprised all that can reasonably be expected by medical men. In the first place a letter was sent to every person whose name appeared in the *Medical Register*, inquiring whether the entry was correct. The total number of names on the *Register* was 40,257, and the total number of inquiries issued was 37,330, the difference being accounted for by the fact that inquiries were not sent to those whose names appeared as belonging to the Navy, Army, or Indian Medical Service, these lists having been carefully revised previously. A certain number of inquiries were returned through the Dead Letter Office; and with regard to these search was then made in the medical directories of Messrs. Churchill and Messrs. Nisbet, in the lists of universities and colleges, and in such of the colonial medical registers as were available. In this way it was found possible to re-address inquiries in nearly 700 cases. The first letter was dispatched on February 1st; on April 30th a second inquiry in a registered envelope was sent to all those who had not then replied; they numbered 4,100 in England and Scotland, and 822 in Ireland. This second inquiry produced a fairly satisfactory result, but still at the end of August no information had been received in respect of 584 names in England and Scotland, and 134 in Ireland. Thereupon a third inquiry, again in a registered envelope, was sent to these 718 addresses. Eventually the Registrar found himself reluctantly under the obligation to erase 960 names: 463 English, 362 Scottish, and 135 Irish. In how many cases the person was dead is not known. The importance of removing the name of a deceased practitioner from the *Register* is obvious, its retention may afford opportunities for personation; an instance in which it was suggested that this had occurred in connexion with the *Dentists Register* occupied some part of the time of the Council at its last session. The importance of the *Register* as an official work of reference, and therefore the importance to every medical practitioner of taking care that his name appears upon it, will be enhanced by the arrangement which the Council has made with the Registrars-General in England and Scotland to supply the Superintendent Registrars of Deaths with copies of the *Medical Register* for this year at the Council's expense. Instructions have been given that the names of all practitioners who sign certificates during the year are to be looked up; in Ireland, where the conditions are somewhat different, the names will be looked up in the *Register* by the authorities at Dublin Castle. Further, the Board of Trade has undertaken that in future the current *Medical Register* alone shall be accepted as evidence of the registration of persons applying to be accepted as medical officers in the marine service. We cannot too

* They will be found set out in the annual report of the Council of the British Medical Association (SUPPLEMENT, BRITISH MEDICAL JOURNAL, May 21st, 1910, p. 357).

strongly insist that it is the duty of every medical practitioner—a duty due to himself, to the medical profession, and to the public alike—to co-operate with the Registrar of the General Medical Council in keeping the *Medical Register* correct. The trouble of sending a notification of change of address is not great, more especially as similar notifications have to be sent out when any such change is made to a large number of persons and societies. What greater precautions could have been taken than were taken on this occasion to avoid hardship to individuals we cannot see.

"MEDICAL MISGOVERNMENT."

THE invasion of antivivisectionist meetings by lap-dogs seems to be a new feature of the movement. More than one of these little animals, in the arms of ladies, were present at the annual public meeting of the British Union for the Abolition of Vivisection, held at Caxton Hall, Westminster, on June 2nd, and assisted to swell the excited and frequent applause. Indeed, the dogs appeared to be gifted with an almost human sense for psychological moments, and when it was announced that Lady Warwick had sent £10 to the funds of the union their yapping became a perfect chorus. In other respects it was a meeting of disappointments. Letters of apology were read from no fewer than five members of Parliament, who had been announced to support the chair. The Rev. R. D. Monro, M.A., who took the chair in the absence of Sir Francis Channing, and addressed the audience as "Gentlemen and ladies," dwelt upon the degradation of character, hardening of heart, and searing of conscience which followed indulgence in vivisectionist practices, and, quoting some words used before the Royal Commission of the Seventies, referred to men newly initiated into vivisectionist research as "young devils." Mr. H. G. Chancellor, M.P., then moved a resolution protesting "against the encouragement given by the Government and by municipal bodies to the growing practice of vivisection, and against the preferential treatment accorded to the vivisectionist propaganda by a large section of the London press." Speaking of the late Dr. Koch as one who had probably raised more sensations and more hopes than any medical man had ever done before, he said that tuberculosis was almost, if not quite, as prevalent as it was before the advent of his serum—a specific which was now, he believed, largely discredited. Pasteur, again, was supposed to have discovered a cure for rabies; but many of the dogs were much less mad than the people who went to him. Mr. Chancellor also protested strongly against a conspiracy on the part of the great body of journalists to prevent the public from getting knowledge on this question—knowledge which they had a right to have. Dr. W. R. Hadwen, the new President of the Union, was the speaker of the evening, and his subject, Medical Misgovernment, was widely placarded in the neighbourhood of the hall. He said that antivivisection had not yet become a first class Parliamentary question. A great deal of pioneer work yet remained to be done, and in a nation like ours, which held fast by its prejudices, every great reform had taken forty or fifty years to accomplish. He compared the antivivisectionists of to-day with Galileo, fighting down unscientific prejudice; with Harvey, who was abused by practically the whole of the medical profession of his day; and with men like Wilberforce and Shaftesbury, in the opposition they encountered in their moral crusades. Antivivisection, however, meant a harder battle than others because it involved what was called a medical question. There never had been a burning "medical question" which the medical profession had been able to settle for itself. The question had been settled for them by the people outside. It rested with the great British public to take the matter in hand, and he assured them that, when a few points had been mastered, there was no impediment whatever to a sufficient understanding of this subject by the intelligent layman. But in one respect this "medical question" was more complicated than it appeared to be. It was not merely that medical opinion frightened the public, but that vested interests were ranged on the side of the vivisector. The main opposition to this humanitarian reform lay, not with the rank and file of the medical profession, but with the men in high places, belonging to the bureaucracies of Whitehall. It was not the front bench in the House of Commons that the antivivisectors were fighting, but, as in the case of the antivaccination struggle, an entrenched, wire-pulling enemy, in the shape of the permanent officials. Dr. Hadwen's indictment of "medical misgovernment" practically resolved itself into two familiar counts—the constitution and terms of two recent commissions. He complained, in the first place, of the personnel of the Vivisection Commission, the one-sidedness of Mr. (now Viscount) Gladstone's selections, and the field of the commission's investigations. They started out, he said, not to conduct a thorough inquiry into the whole subject, and to determine the right or wrong of vivisection, but to find out what, if any, modifications were demanded in the existing law. He criticized also the action of permanent officialdom in the matter of the Mediterranean Fever Commission; he repeated his contention that Malta fever was due to insanitation and not to the drinking of goat's milk, and asserted that had an independent body of scientists been sent out to inquire into this matter, their finding would have meant a condemnation of the whole medical military system of the island. In conclusion, he called upon the public to unmask and to fight the biassed and prejudiced policy in high quarters which had sufficiently been shown to prevail. Needless to say, the resolution, which was supported by Mr. Arnold Lupton and others, was carried.

THE WORK OF HOSPITAL ALMONERS.

THE authorities of St. Thomas's Hospital have issued as a separate publication the Lady Almoner's Report for the year ending March, 1910, and the social work described is an excellent example of the highly useful part which almoners may play. The work seems to be conducted much on the system recommended by the Hospital Almoners' Council, and the report makes it clear that when provided with a quite practicable amount of assistance a well trained and business-like, but tactful, almoner can do a good many things besides acting as a petticoated Cerberus at the gates of the out-patient department. She can, for instance, promote the maintenance and recognition of the casualty and out-patient departments as purely first-aid resort and "poor man's consulting room" respectively; both are aims to which the authorities of St. Thomas's Hospital and its professional staff appear to attach importance. She can also do much towards securing the real efficiency of the treatment accorded by showing patients that they must co-operate with their physicians or surgeons, helping them to do so by bringing them into touch with outside charitable agencies of various kinds. Most patients, perhaps, require influence and help of this kind if the full benefit of hospital treatment is to be received. There are too many instances of the worn-out mother who hugs a large bottle of medicine, trusting implicitly that it will cure all her troubles, and setting aside,

as either superfluous or impossible of fulfilment, the instructions she has been given as to rest and nourishment. It does not enter into either her head or her husband's that it would be well worth while to pay for a substitute to do for a time her cleaning, washing, and cooking. Common, too, are parents who drag rickety children to and from hospitals weekly, ignoring the fact that the damp and dark basements in which they live and sleep is one of the causes of their illness. From the statistics supplied in the report, it would appear that as the years go on attempts at abuse in the casualty department show some tendency to increase in number, but in the out-patient department gross attempts of this kind are stated to be now rare. In the former department about 8 per cent. of the applicants were sent away last year as in a position to pay a private doctor, about 6 per cent. warned to bring their doctor's card at the next attendance, 26 per cent. referred to provident medical dispensaries, 20 per cent. referred to Poor Law authorities, and most of the rest accorded treatment. In the out-patient department only about 6 per cent. were refused treatment as being able to pay for it themselves. A good many were assisted to round off their treatment by rest in a convalescent home, and others were provided with surgical instruments from various sources, or had admission to sanatoriums obtained for them. The almoner's department, in short, seems to work hand in hand with all local and other agencies for the relief and prevention of distress. One excellent working rule in the out-patient department would appear to be to pass for treatment forthwith every patient accompanied by a medical man's card or letter, the almoners' department taking no action unless the case demands something more than ordinary medical or surgical treatment.

THE LATE MR. CARTEIGHE AND PHARMACEUTICAL LEGISLATION.

MR. MICHAEL CARTEIGHE, whose death occurred at Goring-on-Thames on May 30th, was for fourteen years President of the Council of the Pharmaceutical Society of Great Britain, and the greater part of his life was devoted to the services of that society. His desire was to witness the achievement of the object for which the society was founded, which was, broadly, that all persons entrusted with the duty of compounding dangerous medicines should have the highest possible qualification by training and examination. He recognized that the medical profession would prefer trained men to dispense their prescriptions, rather than persons who had no systematic knowledge, and his aim was to provide for the public a class of men who would, by their training and by an examination based upon that training, deserve to be recognized by the State as members of a calling which ought to receive an adequate amount of protection. In 1866, when Mr. Carteighe became a member of the Council of the Pharmaceutical Society, the sale of poisons, with the sole exception of arsenic, was subject to no restriction, and the only Act which affected pharmacy was the Pharmacy Act of 1852, which merely prevented persons who had not passed the Pharmaceutical Society's examinations from assuming the title of "pharmaceutical chemist" or "pharmaceutist." In 1868, a bill drafted by the society was passed by Parliament and became law; the principle on which this Act was based was that the education of the vendor was the only safe foundation for a poison law. It was enacted thereby that the sale of certain poisons should be solely in the hands of trained persons. It was one of Mr. Carteighe's first duties as a member of the council to assist in the drafting of this measure, and this may therefore be regarded as his first important service to pharmacy. Shortly after the passing of this Act he retired from the council, but remained a member of the Board of Examiners. In 1881, however, he returned to the council, of which body he remained a member until his death. In 1882 he was elected President, and occupied that office without interruption until 1896. In the year preceding his election as president pharmacists had sustained a heavy blow owing to a judicial decision which showed that a company could not be brought within liability of penalties for contravention of those sections of the 1868 Act which made it unlawful for any unqualified person "to sell or keep open shop for retailing, dispensing, or compounding poisons, or to assume or use the title 'chemist and druggist,'" and for any person to fail to conform with the poison regulations framed in pursuance of the Act. The attention of the council was therefore directed towards finding some means of rectifying the defect revealed by this decision; under Mr. Carteighe's guidance several bills were framed with this object, but owing to the amount of threatened opposition they were not introduced into Parliament, and Mr. Carteighe sought to overcome the difficulty in another way. He conceived the plan of raising the status of pharmacy by way of improved education, believing that Parliament could not refuse to grant proper protection to pharmacists if it could be shown that they were a highly educated body of men. Unfortunately, owing to lack of support from the members of his own craft, he was only partially successful. He did succeed in raising the standard of pharmaceutical education, but his larger policy never matured. He desired to obtain powers to insist on a bona-fide apprenticeship, to separate the preliminary from the qualifying examination, and to enable the society to examine on a definite curriculum. He regarded it as an essential that the examiners should know the history of the candidates coming before them, and should not depend merely upon the possession of the requisite examination qualification. The "curriculum bill" introduced into Parliament during his term of office was not successful, but in 1908 the society at last obtained the powers to make by-laws requiring candidates for the qualifying examination to produce evidence that they have received a sufficient training in the subjects. This is only one respect in which pharmacy in later years has reaped the benefit of Mr. Carteighe's labours during his long occupation of the presidential chair, and there can be little doubt that it is largely owing to his efforts that the Pharmaceutical Society holds its present position among the scientific and technical institutions of the country. Apart from the services he rendered to pharmacy, Mr. Carteighe found time to interest himself in the work of several scientific societies. He was one of the founders of the Institute of Chemistry, and for many years a vice-president; he was for forty years a member of the Royal Institution, for a long period one of the leading members of the British Pharmaceutical Conference, and for five years a vice-president of the Society of Arts. Mr. Carteighe was in his 69th year.

INDUCED CELL PROLIFERATION, HEALING, AND MALIGNANCY.

AT the meeting of the Association of Physicians, held at Liverpool on June 2nd and 3rd, a demonstration was given by Drs. Macalister and Ross illustrating induced cell proliferation, and its relation to normal healing and to malignancy. Lantern slides of photomicrographs were shown demonstrating the mitotic figures which can be induced in human lymphocytes

and also in leucocytes by the agency of an aniline dye called "azur." It having been proved that these cells divide in response to this chemical agent, further researches were made which elicited the fact that white blood corpuscles will also divide in response to a chemical agent (the actual nature of which is at present unknown) contained in the extracts of many dead tissues, and probably in all of them, showing that this substance, in causing the division of these cells on the microscope slide, may be, and probably is, the immediate cause of the proliferation of healing. It has been ascertained that this agent is also contained in "globin." Former researches (described in the BRITISH MEDICAL JOURNAL of October 23rd, 1909) have shown that alkaloids, especially atropine, although not in themselves excitors of reproduction, will greatly augment the action of the latter agent in inducing cell division, and that the combination frequently produces in lymphocytes what appear to be asymmetrical mitoses. In experimenting with extracts of dead tissues and with a solution of "globin," it was found that if these solutions were allowed to putrefy for a month the same augmentation occurred, and that this result is probably due to the alkaloid produced by putrefactive bacteria. The same result can, in fact, also be produced by fresh extract of dead tissues or "globin" to which choline has been added. The last lantern slide shown demonstrated an early mitotic figure induced in an epithelial cell from the vagina, proving that these cells also respond to the chemical excitor of reproduction. It was therefore suggested that the unknown substance contained in the soluble remains of dead tissues and in "globin" may be the cause of the proliferation of healing, and that if putrefaction takes place in a site where there is chronic irritation and consequent attempt at healing, with the production of an alkaloid of decomposition such as choline, the divisions in lymphocytes may be of the greatly augmented asymmetrical type, such as are seen in carcinoma—that is, that if it is a criterion that because a cell divides by these asymmetrical divisions it is cancerous, then the combination of the chemical cause of healing and an alkaloid of putrefaction in certain strength will cause carcinoma. Although these points have been shown by experimentation *in vitro* on individual cells, they have not all been proved by experiment *in vivo*, but that "globin" contains a cause of the proliferation of healing has been demonstrated in the case of a chronic ulcerated leg, its direct application to a certain part of the sore having caused abundant granulations to grow in a few hours. The possible association between the cause of the proliferation of healing and the problem of immunity was also raised. Since by healing the body protects itself against invasion by disease germs, and since this healing is caused by a chemical agent which is contained in dead tissues and in "globin," it will be necessary to make experiments to find out whether this agent affects or is affected by disease germs, for if, on the one hand, germs destroy this agent, healing will be retarded, whereas, on the other hand, if the agent destroys bacteria the progress of the disease may be arrested.

YELLOW FEVER IN WEST AFRICA.

IN view of statements which have appeared in the press with regard to the outbreak of yellow fever in West Africa, the Colonial Office thinks it desirable to state that since May 13th, when the outbreak was first reported, there have been twelve cases in all—nine at Sekondi and three at Freetown. All the cases have unfortunately proved fatal, and, with three exceptions, those attacked were Europeans. No fresh case has occurred at either port since May 26th, and no cases have occurred at any other place in British West Africa. As soon as the outbreak was reported, meetings of the Advisory Medical and Sanitary Committee for Tropical Africa were summoned, and Lord Crewe has acted throughout on the advice of this body. As soon as it was certain that the disease was yellow fever, Lord Crewe was glad to avail himself, with the consent of the Corporation and the University of Liverpool, of the offer of Sir Rubert Boyce to proceed to the West Coast to assist in organizing measures for stamping out the disease. Sir Rubert Boyce accordingly proceeded to Sekondi on June 1st, accompanied by six medical men, two others being simultaneously sent to Freetown. They were all drawn from the London School of Tropical Medicine, which they were attending as selected candidates for the West African medical staff. They will receive the initial pay of officers of that service.

BOGUS MASSAGE AND NURSING HOME

IT is somewhat unfortunate that a contemporary which has recently drawn attention to bogus massage and nursing homes should have such a reputation for sensationalism, for it would seem that during the past year or two there has been a distinct recrudescence of the evil. Apart from discreetly indiscreet name-plates in various streets there are to be found in most of the Sunday, and indeed other, papers advertisements the meaning of which is not difficult to interpret. It may be doubted, however, whether detailed consideration of the scandal in the general press is desirable, for in existing conditions it would seem that effective action can be taken by the police alone. Nor in this should there be much difficulty, for in many instances the veil which distinguishes these "homes" from ordinary so-called "disorderly houses" is of the thinnest possible character. In no well-managed State should two most desirable occupations for women—nursing and massage—be permitted to be brought into disrepute by vicious or criminal persons adopting the external characteristics of those belonging to them. Among the recommendations of the Select Committee of the House of Commons, appointed some years ago to consider the question of nurses' registration, was one providing for the inspection of nursing homes. Such inspections would be some protection against bogus institutions, but power to hold them is not specifically created by any of the bills since framed; and it is by no means certain that such power would evolve, as the Society for the State Registration of Trained Nurses seems to think, from those created by the general clauses of such proposed Acts. There would be less risk of genuine and bogus practitioners being confounded if the Incorporated Society of Trained Masseuses played a more prominent part than hitherto, and if it were accorded a definite position among official institutions. In any case membership of that society should be regarded as a *sine qua non* by every woman who practises massage, by every medical man who employs a masseuse, and by every patient who seeks the services of a masseuse on his or her own account. At present the existence of the society is probably not known to the public at all, and though it has the support of a large number of prominent medical men, both in and out of London, is less familiar to the medical profession as a whole than it should be. It only admits to its membership those who produce evidence of adequate training and good moral character, and permits none of its members to undertake any case except under the direction or sanction of a registered medical practitioner. It has its home at 12, Buckingham Street, Strand.

TREATMENT OF TRYPANOSOMIASIS.

MR. J. D. E. HOLMES, Imperial Bacteriologist to the Government of India, has recently been trying different forms of treatment for surra, a trypanosome disease of horses in India. Combinations of atoxyl and arsenious acid have been found to be the most efficient drugs, and in one experiment 12 out of 16 ponies are believed to have been cured. In these instances the drugs were administered in the following way: A dose of arsenious acid in solution (Loeffler and Ruchs) was administered as a drench at a period of paroxysm; this was followed on consecutive days by a dose of atoxyl subcutaneously, and a dose of arsenious acid as a bolus. These three doses were repeated once or twice at intervals of four days, and once after an interval of eight days. In a few instances the intervals between the doses varied. In some cases a dose of atoxyl was first given subcutaneously, and was found to clear the circulation of trypanosomes within twenty-four hours. This system of treatment was the most successful tried. In four cases the treatment failed—in three instances probably from insufficient doses, while in one case the interval between the doses was increased to six and twelve days. All the animals stood the treatment well and rapidly improved in condition. In view of these successful results arsenious acid might perhaps be more commonly employed in combination with atoxyl in human cases.

WE are informed that at the approaching election to the Council of the Royal College of Surgeons of England Mr. Lockwood will offer himself for re-election, and that Mr. C. Ballance, Mr. Bland-Sutton, Mr. Ernest Lane and Mr. Bilton Pollard are candidates for the vacancies on the Council. An analysis of the Council as it is now constituted appears in our columns on p. 1448.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

The Spring Recess of the House of Commons was to have ended on May 26th, but this arrangement was upset by the ever-to-be-lamented demise of King Edward VII on May 6th. The members of both Houses of Parliament consequently assembled on May 7th, and on May 9th the last Parliament of King Edward VII was transformed into the first Parliament of King George V by the swearing-in of the members. On May 11th, the Royal Message of H.M. King George was received, and the motion for an address and message of condolence to the King and Queen Mother was passed, on the proposal of the Prime Minister, seconded by Mr. Balfour. The House of Commons then adjourned to Wednesday, June 8th.

The Order of Business.—Before the House of Commons adjourned the Prime Minister indicated the business which must necessarily occupy the House of Commons on its reassembling. The Navy Votes in Committee of Supply were appointed as the work for Wednesday, June 8th. On the next day the report of these votes was arranged to be taken by the Ways and Means resolution in Committee. On Friday private members' bills have one of their few chances for this session. For the next few weeks the business must be mainly financial. The Consolidated Fund Bill must be passed; a committee will have to be appointed to draw up a report on the Civil List for the new reign; a measure to modify the Statutory Declaration of Faith made by the Sovereign is to be drawn up and introduced; the Budget for the year, now overdue, has to be presented and discussed, while some fourteen days are required to make up the twenty allotted to Supply. The bill authorizing the Census of 1911 will have to be passed, and the Supreme Court of Judicature Bill authorizing the appointment of extra judges, which is under consideration and to which there are some three and a half pages of amendments down on the paper, must occupy a day or more of the Government time. A Regency Bill will also have to be passed through the two Houses. This summary of necessary business, including, as it does, the Budget, which is sure to occupy a good deal of time, shows that there is sufficient to occupy Parliament till the end of July or even till the middle of August, so that the opportunities for other legislative work can only arise if it should be decided to hold an autumn session for the transaction of other business.

The Royal Navy Medical Service.—Both Houses of Parliament met on Wednesday, and Peers and Members not yet sworn took the oath of allegiance to the new King. Among the large number in the Commons was the Speaker himself, who was sworn in as the first business. There were only some eleven questions on the paper, none of very great interest, and when they were all answered the House went into Committee of Supply on the Navy Estimates. The first vote, for clothing and victualling, led to a friendly discussion, and satisfaction was expressed by Lord Charles Beresford and others at the improvement in the victualling. Next came the vote for £263,000 for the Medical Service. Lord Charles Beresford observed that the First Lord in his statement had said that questions of the greatest importance and far-reaching scope had been brought before the Committee of the Admiralty which was investigating matters connected with the Navy Medical Service. He hoped that the report of that committee would be published as soon as possible. There was hardly anything more important than that the medical service should be organized and ready for war, for at the moment of war an immense reserve in surgeons and staff would be wanted. He advocated the establishment of a royal naval medical school similar to the Royal Army Medical College at Millbank, and hoped that the First Lord would be able to say that the committee had provided for some such establishment. He calculated that the peace establishment of surgeons at the present time was sixty or seventy short. There were only thirty-four surgeons in the Royal Naval Volunteer Reserve, and he suggested that the number might be immensely increased by inviting surgeons of mercantile ships to become surgeons in the Reserve. He paid a tribute to the nurses, whose advent, he said, had been followed by an enormous improvement in naval hospitals. He hoped, further, that it would be recognized that the building of hospital ships was absolutely essential. If they were properly found, like modern hospitals, with a proper number of surgeons and proper staffs, hundreds of lives would be saved in case of war. Mr. Bowles agreed that the question of the sufficiency of naval surgeons was one which should occupy the attention of the Admiralty. Mr. Lee strongly supported the plea for the building of hospital ships. He had had personal experience of the difference of treatment in a merchant ship converted to hospital uses and the treatment on a ship built for the purpose. He thought that the Admiralty might usefully study what the United States navy department had done in providing ships especially built for the purpose. Mr. Ashley called attention to the small pay of the nurses; the maximum of £50 per annum was too low. In his reply, Mr. McKenna said it was intended to start building a hospital ship next year, and regretted that the report of the committee, which had considered the medical service and had dealt thoroughly with every question raised, had not been published even in part. The recommendations were under consideration by the Board, and he was not going too far when he said that he expected not only that the bulk of them would be accepted, but provision would be made to carry them into effect; on some of the matters, such as scale of salaries for doctors and nurses, the Admiralty was not the only authority to be consulted. The vote was then agreed to.

Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

National Association for the Prevention of Consumption.

The National Association for the Prevention of Consumption and other forms of Tuberculosis, which up to the present has held its annual meetings in London, has this summer convened the eleventh at Edinburgh. At the same date as the annual meeting, and under the auspices of the association, a conference will be held regarding consumption, especially the more interesting and present-day questions as to its causation and prevention. Professor William Osler, F.R.S., will preside, and it is expected that leading representatives of thought on the various aspects of tuberculosis from the United Kingdom, America, and the Continent will take part. In connexion with the conference there will be a Tuberculosis Exhibition, including the exhibition of the National Association which has obtained such a remarkable success in London, Oxford, and Cambridge. The annual meeting will take place in the United Free Church Assembly Hall, on Monday, July 4th. The conference will be held in the Rainy Hall of the New College on July 4th and 5th. The exhibition will be held in the New College Buildings, Mound, and will continue for a week from July 1st to July 9th inclusive. The annual meeting will be open to the general public. The conference will be open to members and (by special card to be obtained from the secretaries) to all medical practitioners and representatives of public health departments and local authorities. Membership of the association is constituted by payment of a minimum subscription of 5s. The Tuberculosis Exhibition will be open each day to the public free of charge. Arrangements will be made for conducting school classes and other groups round the exhibition and explaining the various exhibits. It is believed that by means of the exhibition an educative movement of the highest importance with reference to consumption and other forms of tuberculosis will be effected. It is hoped that members and officials of the local authorities throughout the kingdom will avail themselves of this excellent opportunity to acquire the fullest and most recent information regarding the subject. An influential committee has been formed to ensure the success of the meeting. The chairman of the executive committee is Sir Alexander Christison, Bart.; the honorary treasurer is Dr. R. W. Philip; the honorary secretaries are Dr. W. Leslie Lyall, Mr. Geo. A. Mackay, Local Government Board, and Dr. James Miller.

A provisional programme has been issued. On Friday, July 1st, the Tuberculosis Exhibition will be opened by the Countess of Aberdeen. On Saturday morning, July 2nd, addresses to teachers and scholars will be given by eminent visitors, in Edinburgh schools, while in the afternoon the Royal Victoria Hospital Farm Colony, at Springfield, Lasswade, will be inaugurated, and a garden party will be given by the Committee of the Royal Victoria Hospital. On Sunday, July 3rd, there will be a special service for university students and visitors in the McEwan Hall, and an address by Professor Osler. On Monday, July 4th, at the Tuberculosis Conference, there will be discussions on the Avenues of Infection in Tuberculosis and on Preventive Measures and the Administrative Control of Tuberculosis. In the evening the annual meeting, presided over by the Right Hon. Lord Balfour of Burleigh, will be held, and this will be followed by a reception by the Municipality of Edinburgh. On Tuesday, July 5th, there will be discussions on the Incidence of Tuberculosis in Childhood and The Working Man in Relation to Tuberculosis.

Medicine and Public Health in the Highlands.

In issuing the nineteenth annual report, Dr. John MacDonald, the medical officer of health for Inverness-shire, states that the general health of the county during 1909, as evidenced by the death-rate and the number of cases of infectious diseases, has been, on the whole, good. Notwithstanding the severity of the weather during the last few months of the year the death-rate was lower than it had been in the three previous years, and the number of notifications of infectious diseases and the zymotic death-rate lower than in 1908. No widespread epidemic of notifiable diseases occurred, but influenza was prevalent in several of the districts, and was responsible for 33 deaths. No cases of small-pox or typhus fever were notified, but 2 cases of relapsing fever occurred in Harris. The last occasion on which this disease occurred in the county was in 1902, when 8 cases were notified, also from Harris. The number of deaths registered was 950, compared with 979, 992, and 987 in the three preceding years, giving a death-rate of 14·628, as against 15·085 in the previous year. The uncertified deaths numbered 259, or over 27 per cent. of the whole. The number of uncertified deaths in the county remains at a fairly constant figure from year to year. By far the greatest number occurred in the islands, namely, 191, or over 20 per cent. These figures clearly show that medical attendance in the Highlands is insufficient.

This is a question intimately bound up with the health and lives of a great number of people, who are widely scattered over large areas both on the mainland and on the islands. The inadequate medical attendance represents much suffering, loss of life, and misery which might be obviated or relieved if medical attendance were available. Looking at the matter from another point of view, crime may be allowed to go undetected for the want of medical certification. The Poor Law Commissioners drew attention to this matter in their report. The whole problem of the Highlands is a difficult one, but what is clearly necessary in this particular matter is a special grant in aid of medical attendance. Of the total number of deaths, 460, or almost half, were of persons above the age of 70 years; 276 were between 70 and 80, 161 between 80 and 90, 22 between 90 and 100, and 1, a female, was over 100. The number of deaths attributed to tuberculous diseases was 83, phthisis being responsible for 67. The Inverness-shire Sanatorium continues to do good work. One or two new shelter huts have been erected. The number of cases treated during the six months ending October 31st was 18. Cases in the incipient stage did very well.

Sir James Crichton-Browne.

Sir James Crichton-Browne last week opened the newly constructed town hall of Dumfries, which was destroyed by fire in November, 1908. Afterwards he received the freedom of the burgh, the burgess ticket being enclosed in a silver casket.

In acknowledging the honour paid him, he said he owed his success in life to having been brought up in that district in a simple Scottish home, and an old-fashioned school, and to the precept and example of a greatly gifted and cultured father. In the evening Sir James opened a bowling green, which the Town Council has had laid down in the public park for working men.

Ireland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

Midwives Act and Ireland.

The question of the extension of the Midwives Act to Ireland has been brought prominently before the profession by a letter on the subject addressed by Dr. F. W. Kidd, of Dublin, to the Council of the Irish Medical Association. After dealing with the objections commonly urged against the bill, namely, that it establishes a body of practitioners with inferior qualifications, who to some extent compete with medical men, and that it fails to provide that remuneration should be given to doctors who are summoned by midwives to attend in complicated cases—an objection which would be removed by the proposed amending

bill—Dr. Kidd proceeds to consider the adoption of the Act in Ireland under the headings of utility and feasibility. As regards utility, he points out that the great object of the Act was to protect the public from the ministrations of the "handy woman." Such protection is, he thinks, not required in Ireland, inasmuch as the number of midwives trained in proper institutions has been so large as practically to destroy the calling of "handy woman" in populous centres, while in rural districts the need can, he maintains, adequately be met by the universal appointment of district midwives. From the point of view of feasibility, he points out that the extension of the Act to Ireland would necessitate representation of Ireland on the Board, and the establishment of local examination centres, thereby entailing an increase in training expenses. Furthermore, assuming that the number of nurses did not diminish, there would not be enough maternity cases to supply each nurse with the requisite number without to some extent depriving students of advantages which up to the present have so much helped the Dublin School of Obstetrics. The only reason, he proceeds, that can be urged for the adoption of the Act is that Irish nurses may otherwise suffer; but this point can, he thinks, be met as follows: Under Clause XII of the amended bill, any woman who produces evidence that she has been trained as a midwife and certified in any other part of His Majesty's dominions in which there is for the time being in force any Act or Ordinance for the certification and registration of midwives under a public authority, may under certain conditions be certified under the main Midwives Act. Such an Ordinance for the certification and registration of midwives under a public authority as would entitle those registered to the advantages of reciprocity might, Dr. Kidd suggests, be established as a part of the coming scheme of Poor Law reform; he considers that this might prove a satisfactory solution of the question as far as Ireland is concerned. The opinions expressed above are of extreme importance and deserve the careful consideration of Irish doctors. The Council of the Irish Medical Association has invited its members to express their opinions, with a view to ascertaining the general feeling of the profession on the subject.

MEDICAL OFFICERSHIP OF SKIBBEREEN WORKHOUSE.

The case of the Skibbereen Guardians, in which they sought an injunction to restrain Dr. T. O'Meara from discharging the duties of medical officer to the Skibbereen Workhouse, came before the Chancery Division in Dublin on June 3rd. It will be remembered that the guardians some months ago appointed two medical officers, but the Local Government Board, wishing to meet their views as far as possible, and thinking that the proposed arrangement was not open to objection on administrative grounds, sanctioned the appointment of one of the doctors, namely, Dr. O'Meara, and suggested to the guardians to advertise for the appointment of a second on another day. The guardians complained that this was a misapprehension of their resolution, and that it was not divisible in that way. Mr. Justice Barton thought the Local Government Board could not, without altering its regulations, sanction the making of two (joint) appointments, and he did not think it was right in giving a partial sanction to the resolution. It, in his opinion, could not be made divisible in that way. In the circumstances the defendant had no right to insist on discharging the duties of medical officer, and enter the plaintiffs' premises for that purpose. He was of opinion also that the guardians had brought the action bona fides. Mr. Justice Barton added that Dr. O'Meara was perfectly blameless in the matter, and every one had agreed in praising him and saying that he was entirely fitted for the appointment. That was the only consolation he had. His qualities had been recognized in public in that court, and he wished he could make some person pay his costs, but he could not. He would certainly, however, not make him pay any one else's costs as well.

POST-GRADUATE CLASSES, TRINITY COLLEGE, DUBLIN.

The summer session of the post-graduate classes held in connexion with Trinity College, Dublin, was inaugurated in the Anatomical Theatre, Trinity College, Dublin, on Monday, June 6th, by Mr. B. G. A Moynihan, of Leeds, who delivered a lecture on dyspepsia. The Provost of Trinity College, who is a member of the medical profession, was in the chair, and there was a large attendance of medical men. Mr. Moynihan dealt with three varieties of dyspepsia: that associated with the presence of a duodenal ulcer; the variety which is symptomatic of the presence of gall stones within the gall bladder; and with "appendix dyspepsia." He laid special stress on the fact that each of these three varieties was regarded as a purely functional disturbance only a few years ago. After the conclusion of the lecture a vote of thanks was proposed by the Regius Professor of Medicine (Dr. Little), was seconded by the Regius Professor of Surgery (Sir Charles Ball), and was passed by acclamation.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

LONDON.

THE COUNTY COUNCIL.

Dr. D. J. Jones, of Banstead Asylum.

THE Asylums Committee of the London County Council reported on June 7th the resignation of Dr. David Johnston Jones, the medical superintendent of Banstead Asylum. Dr. Jones has been for thirty years in the asylum service, and twenty years at Banstead, where he has been medical superintendent since October 1st, 1901. The committee added: "We gladly avail ourselves of this opportunity of recording our appreciation of Dr. Jones's faithful service, and his sympathetic care of the patients."

Public Slaughterhouses.

The Local Government Board has intimated to the London County Council that it does not see its way at present to undertake an inquiry into the need for public slaughterhouses in London, as suggested by the Council in November, 1909.

Cost of Medical Inspection.

The London County Council on June 7th devoted nearly twelve hours to the preliminary consideration of the annual education estimates. The cost of medical inspection accounted for an increase of £3,615, and medical treatment of £4,000. Mr. R. A. Bray, in the course of a general debate, remarked that medical inspection of school children in London was in a profoundly unsatisfactory condition. The County Council had fallen far short of the Board of Education's minimum requirements, and with the staff it would have in September it would still be behind. With that staff about 150 schools could be inspected in a year, and there were 900 schools in the administrative county. It would be six years before all the schools could be inspected unless the pace was accelerated. At the same meeting the Education Committee submitted a recommendation—which, however, was not reached—that in cases where children sent to hospitals were discharged after the first attendance on the ground that no treatment was necessary, the examination at the hospital should be regarded as "school medical inspection" within the meaning of the Act.

THE WEIR BEQUEST.

The appeal of the Wandsworth Borough Council against the decision of Mr. Justice Eve upholding the scheme of the Charity Commissioners for the disposal of the Weir bequest has been allowed. Mr. Benjamin Weir, who died in February, 1902, bequeathed certain freehold houses in Balham and Streatham and the residue of his estate, the whole amounting in value to over £100,000, for the purpose of establishing a hospital or other medical charity, to be called the Weir

Hospital, for the benefit of the inhabitants of the parish of Streatham and the neighbourhood. The trustees, considering it to be impracticable to carry out the specific provisions of the will, and relying upon the general provisions, applied to the Charity Trustees to settle a scheme for the administration of the charity. The Commissioners accordingly made an order directing that the house at Streatham should be used as a home for a staff of trained nurses whose services would be available for all the inhabitants of Streatham and the neighbourhood, and the other house a dispensary, and that the surplus income arising from the remainder of the endowment not required for the maintenance of the nurses' home and the dispensary should be applied to enlarging and supporting the Bolingbroke Hospital on condition that the name of that hospital was changed to the Weir and Bolingbroke Hospital. The Court of Appeal held that the Charity Commissioners had disobeyed the rules of law which ought to govern them.

MANCHESTER AND DISTRICT.

The Royal Infirmary and Medical Women.

Some months ago the Convocation of the Manchester University passed the following resolution with reference to the refusal of the Royal Infirmary to appoint medical women to the resident posts at the infirmary:

> That, having regard to the interests of the women students in the Faculty of Medicine, Convocation desires to suggest to the University Court that they should ask the Royal Infirmary Board to reconsider the question of appointing women to resident posts at the Royal Infirmary.

This resolution came up for consideration at a meeting of the University Court on June 1st, at which Vice-Chancellor Hopkinson presided. Sir Wm. Cobbett, who is Chairman of the Board of Management of the infirmary, said that if this resolution were adopted by the Court the infirmary could only return one answer, which he thought would not be satisfactory to the supporters of the resolution, and would place the infirmary and the university in a regrettable position. At the present time a subcommittee of the Board of Management was considering whether and to what extent and by what means the post-graduate education and training of medical women could be assisted by the infirmary, and without saying more he thought it right to direct the attention of the Court to these two matters. Dr. Schuster thought that after what had been said by Sir Wm. Cobbett every one would agree that the time was not opportune for the university to take action, but felt that it would not be courteous to Convocation simply to shelve the resolution. After some discussion it was resolved:

> That the resolution of Convocation be communicated to the council for its consideration and for report to the Court.

Mr. F. A. Southam and the Royal Infirmary.

At a meeting of the Board of Management of the Royal Infirmary on May 31st the retirement of Mr. F. A. Southam from the post of honorary surgeon to the infirmary was reported. Mr. Southam has been a member of the honorary surgical staff for upwards of thirty years, and has now reached the age limit of 60 prescribed by the rules of the infirmary. The board passed a resolution recording its high appreciation of the services he had rendered, and in declaring him elected an honorary consulting surgeon, expressed the hope that "the benefit of his wise counsel and professional skill would still be available, and that he would be spared for many years to continue his association with the institution for which he has so long and consistently laboured." On June 3rd a dinner was given to Mr. Southam at the Queen's Hotel by the house-surgeons and resident surgical officers who had served during his term of office. In the course of the evening he was presented with a silver tray as a token of the affection and regard of his henchmen. Mr. Wright and Mr. Thorburn were also present as guests.

Owing to the vacancy caused by Mr. Southam's retirement, Mr. J. W. Smith, F.R.C.S., Senior Assistant Surgeon, has been elected Surgeon, and Mr. C. Roberts, M.B., F.R.C.S., has been appointed Honorary Assistant Surgeon in place of Mr. Smith.

Doctors and Hairdressers.

It is evident that the Northern Counties Hairdressers' Federation is in earnest in its attempt to introduce into hairdressers' establishments approved sanitary methods in order to minimize any dangers to the public that might arise in the course of their business. The federation has adopted a code of sanitary rules based on the advice of medical authorities, and has definitely expressed itself as most anxious to work in accordance with the recommendations of medical men. A perfectly reasonable request was made some weeks ago by the secretary of the federation that medical men should carefully consider the serious results to hairdressers that may follow any off-hand statement by a medical man that a person is suffering from "barber's itch" or "barber's rash." There are persons only too ready to make unjust claims for damages on the strength of a doctor's statement that they are suffering from the results of a "foul shave," and the appeal of the federation that any facial disease submitted for diagnosis should be called by its proper name, sycosis, tinea sycosis, impetigo, etc., ought to be acceded to, especially as the federation is showing in a practical way that it intends to take every possible precaution in its shops to prevent the spread of these diseases through shaving. As a step in this direction the Salford Branch of the federation has already appointed a medical adviser. The example of Salford has been followed by Rochdale, Bury, and Oldham, and according to the *Hairdressers' Chronicle* there is every probability that within the next few weeks Manchester will follow suit. In Salford the medical adviser is paid a retaining fee, and, in addition, for actual work done at his usual rates. Lectures have been given on the best sanitary methods of conducting a business, and establishments are inspected and advice given. Persons claiming damages for "dirty shaves" from members of the federation are sent to the medical adviser for examination, and if, as a result of the examination, it is decided to contest any claim, he appears in court to give evidence. The medical adviser for Salford has for many years consistently, as a member of the British Medical Association, supported the rights of the medical profession to proper remuneration for actual work done, and his definite opinion that the Northern Counties Hairdressers' Federation is making a genuine attempt to maintain the highest standard of sanitary efficiency in its shops and is prepared to enter into satisfactory arrangements for obtaining the help of the medical profession, will no doubt ensure for the federation the support of medical men.

India.

[*FROM OUR SPECIAL CORRESPONDENT.*]

The Permanganate Treatment of Snake Bite.

Not the least interesting and important discussion at the Bombay Medical Congress of last year was that on snake bites. Sir Lauder Brunton contributed an important paper on the subject, including an account of his well known local treatment by incision and direct rubbing in of crystals of potassium permanganate at the seat of the injection of the venom. A number of successful applications of this method, in cases in which the snake had been identified as poisonous, as well as a few unsuccessful ones, were recorded. One of the Bombay workers criticized the method on the strength of a single experiment on monkeys with unknown quantities of venom, but pretty certainly a far larger number of lethal doses than could be received by a human being. Further experimental investigation of the treatment has since been going on at the Bombay

Laboratory, and an official press note recently appeared to the effect that intravenous injections of potassium permanganate are dangerous in animals. This relates to a suggestion made at the Bombay Congress that further experiments might be made to see if permanganates could be used intravenously to neutralize venom already absorbed when the patient comes under treatment. The Bombay tests thus confirm Sir Joseph Fayrer's results of over thirty years ago, which were mentioned in Sir Lauder Brunton's paper, and also others carried out in Calcutta and referred to in the discussion, to the effect that intravenous injections of potassium permanganate are both useless and dangerous in the treatment of snake bite. Unfortunately some of the lay papers have been misled by the brief press note into thinking that the recent negative Bombay experiments referred to the local application of this salt, with which, of course, it has nothing whatever to do. The results of the Bombay work, which is still in progress, will be awaited with interest, and we may join in the hope expressed by the leading lay Bombay paper that they will yield some positive as well as negative results.

Special Correspondence.

PARIS.

Compulsory Vaccination and its Results.

IF there were an official medical calendar for French doctors, it would contain somewhere about the beginning of June the following note: "*Vaccination et revaccination antivariolique: service départemental.*" This, in fact, is the season of the year consecrated by usage and the tacit consent of all parties for doctors to pay their visits to the office of each *mairie* in his district, in order to carry out the provisions of the law of February, 1902, with regard to the protection of the public health. This law, completed by a decree of July 27th, 1903, explained by a circular from the Minister of the Interior dated August 7th of the same year, sanctioned by a resolution of the departmental council of hygiene, and regulated in its application by the Conseils généraux in 1905, came into force in 1906.

Until then vaccination was a matter of private concern. It had long been the custom to have children vaccinated during their first year by the doctor or the midwife who had presided over their entry into this world. Later on the State found several occasions for prescribing revaccination. In this way fresh inoculations were imposed on young persons at the time when they entered the lycée or the great secondary schools or the higher schools, as, for instance, when a student's name was first entered at the Faculté de Médecine. The young soldiers were all revaccinated at the beginning of their military service, and I myself, who write, was revaccinated in this way seven times in three years and seven times besides, always with most complete want of success.

This was all very well for the majority of male persons who, in the course of preparing for a professional career or owing to the requirements of civic life, fell from time to time within the sweep of the administrative net. On the other hand, women almost always remained content with their primary vaccination, and so did those of the opposite sex who, being both poor and weakly, could not be seized upon by the State either during the course of their professional education nor required to serve as soldiers.

The law of 1902 systematized and generalized the provisions for the prophylaxis of small-pox. It required (1) the vaccination of infants between the ages of 3 months and 1 year; (2) the revaccination of children between the ages of 10 and 11 years and of young persons between the ages of 20 and 21 years. This duty the departments assigned not indiscriminately to all doctors, but to those only who already held some public office, already received some salary from the Administration, and therefore, being already in relation with it, could be counted upon to regard with greater complacency or greater resignation the very moderate fees the Administration was prepared to offer. The tariff of fees varied in different departments, and I will quote as an example that of my own native department of the Yonne:

1. Vaccinations performed in the place where the medical practitioner resides.—Seventy-five centimes for each of the first twenty operations; 35 centimes for each operation above the twenty.

2. Vaccinations performed in communes to which a journey is necessary.—One franc 25 centimes for the first ten; 1 franc for the next ten; 50 centimes for the others.

This tariff may be sufficiently remunerative in towns where vaccinations are numerous. It is much less so in country districts, where the population is much less dense.

One clause rendered it still worse: the doctor was obliged to vaccinate and revaccinate in the course of the same year until success was attained, without any additional fee. Yet it is well known what the results of revaccination are contingent on various circumstances; I have, for example, given my own personal experience above. The Administration, however, did not take long to discover that this clause which required us to be successful as Rome required its generals to be victorious was unreasonable, and two years ago we were cheered by the following note entered on our sheet of statistics (thirteen pages to be filled in for each commune), "will be considered as successful all cases in which revaccination produces instead of a vesicle a simple *bouton* or only a papule resembling in appearance the classical papule. With good luck, then, the unsuccessful cases of vaccination need no longer trouble the philanthropic work of the State. A hint should be enough to make the State and the doctors understand each other, and it would be deplorable ignorance of the refinements of language to report any cases in which arms have remained refractory to our scarifications. We are now in a position to furnish to learned societies triumphal statistics, thus affording an instance of the degree of perfection which can be attained when Governments are willing to assist in the progress of medicine.

But from another point of view the administration of the law still remains unsatisfactory. Vaccinees of the first category, the infants, we find in their cradles or in the arms of their nurses. Those from ten to eleven years of age are brought before us by the teachers in school. But the last class is out of our reach. Many individuals in this category do not obey the summons of the municipalities, and the muncipalities with the fear of the elector before their eyes dare not institute the prosecutions which the law demands. Through apathy, ignorance, or from a feeling of independence which can find no better way of asserting itself than by claiming and proclaiming the right of the individual to be ill if he likes, this clause of the law has been reduced to a mere form of words.

Every law of a medical nature when it comes to be applied practically encounters forces of obstruction and inertia which we dare not attack. It is in such circumstances especially that laws are powerless unless reinforced by habit and custom. Science must be authoritative or persuasive. Authority acts quickly but encounters many difficulties, persuasion is effective but acts slowly. The administration of our laws as to prophylaxis and hygiene is as yet little more than a compromise between the two methods, and the service of public vaccination and revaccination against small-pox in France is one of the most topical examples that can be instanced.

Correspondence.

THE MEDICAL SICKNESS SOCIETY.

SIR,—Your issue of June 4th contains a letter from Dr. W. G. Dickinson about the Medical Sickness Society. In this letter are several misstatements as to matters of fact, which it seems to us would injure the society if they were left uncontradicted.

Dr. Dickinson says that "no motion is allowed to be proposed which has not the sanction of the chairman." This is not the fact. What Dr. Dickinson probably had in his mind is that no motion is allowed to be *discussed* without the sanction of the *committee*. In other words, the committee has resolved to keep to its business, and not let itself to be turned into a debating society. Any member of the committee can propose anything, but the committee will determine whether they will discuss it or

not. They will not have their time wasted in discussing irrelevant or absurd proposals.

Dr. Dickinson says: "The society is really a 'one-man' society." It is not. The society is managed by a committee. The only authority the chairman has is the influence he has acquired by his long services, his regular attendance, his knowledge of the rules, and of life insurance business in general. By virtue of these qualities he can influence the votes of members of the committee, but in no other way.

Dr. Dickinson says: "The society is run on the strictest profit-making life insurance lines." That is, on the soundest lines. Then he says: "The reserves . . . I contend, far exceed any possible liabilities." We trust Dr. Dickinson will not take offence if we ask those who read his letter to bear in mind that he is not an actuary. The society's financial position has been valued by an independent actuary every five years, and his opinion is that the margin of the reserve funds over the liabilities of the society is a very small one. A part of this small margin is distributed in the bonuses to which Dr. Dickinson refers.

Dr. Dickinson says: "A member may go on paying premiums all his life, seldom or never making any claims. In return for the hundreds of pounds he has paid he gets, if he live to 65, a bonus of £40 or £50,[1] otherwise he gets nothing." This is what every member, when he joins, hopes may be his own case. We hope it may be Dr. Dickinson's case. But it is not a fair picture of the result of joining the Medical Sickness Society, unless the reader is also informed of the members who have not paid hundreds in premiums, but have received thousands in sick pay.

Dr. Dickinson says: "Another objection which I have frequently heard is that all benefits cease at age 65, just when a man is most likely to want assistance from the funds." This has been discussed by the committee over and over again. Once they went so far into it that they asked the secretary (who is an actuary) to prepare figures showing approximately what would be the increase in the premiums required if the benefits of the society were extended to the age of 70. We do not recollect the exact figure, but we think it came to this, that the annual premium paid by each member would have to be nearly doubled.

Dr. Dickinson says "the committee really nominates itself, and its election is a pure formality." This is so, and we hope will continue to be so. The qualifications required in a good committee man are that he shall attend regularly, study the rules, and master the business of the society. When a set of men have been got together who fulfil these requirements the best thing for the society is that they should be re-elected year after year, as long as they are willing to attend. We can imagine nothing more certain to smash up the society than the transference of its management from a committee such as it at present has, to a scratch lot, knowing little or nothing about insurance business, some of them tempted to come forward by the prospect of free trips to London, and elected by a popular vote, which would probably replace them by a different scratch lot at the next annual election.—We are, etc.,

G. E. HERMAN,
F. SWINFORD EDWARDS,
Treasurers, Medical Sickness Society.

June 4th.

THE ASSOCIATION'S ACTION IN DISCIPLINARY CASES.

SIR,—I desire to express my warm approval of the action of our Association in bringing the Sheffield case before the General Medical Council.

Many men working alone at a heavy general practice must frequently have regretted the good old days when a cheap unqualified assistant was engaged to take emergency cases and do night work and midwifery. But, with few exceptions, the new regulations have been loyally obeyed, and I believe that the bulk of the members will be glad that an example has been made and a penalty inflicted through the efforts of their own Association.—I am, etc.,

Stoke-on-Trent, June 6th. A. A. HILL, M.D.

[1] These figures are not quite accurate, but this is immaterial.

THE NATIONALIZATION OF MEDICAL SERVICE.

SIR,—Dr. Moore's article in the JOURNAL for June 4th is obviously the work of a man not engaged in the turmoil of private practice. He writes in the serene atmosphere of a professorial chair, in the Olympian peace born of a fixed income. His conclusion that all is well and tends to better with the profession is built on insecure premisses. "Occasionally dishonest persons . . . attempt to avoid adequate payment." Were Dr. Moore in practice, he would soon learn that a large proportion of patients avoid payment entirely. Few of us anticipate less than 15 per cent. of bad debts, and 25 per cent. is no uncommon experience. The psychology of the multitude is a factor beyond the ken of the professor "if the health of every man, woman, and child is completely attended." The great bulk of the people will never consult a doctor or Britishers tolerate for a moment the inquisitorial method suggested by this sentence: "Unless the amount of work is rapidly decreasing." The rapid diminution of the sick-rate is a patent fact testified to by the reports of medical officers of health and experienced practitioners. In this city, for instance, one man is conscientiously able to attend 5 000 patients; normally such a number should support three practitioners. The suggestion that there is an enormous amount of remediable sickness which will be dealt with by a State service is not in consonance with the facts of practice amongst the working classes. The bulk of the work resolves itself into dealing with the feeding of infants, the dyspepsia and neuroses of women, and troubles arising from overwork and worry. In the winter add influenza. Phthisis, the disease *par excellence* to be dealt with by State service, can never be attacked until the slums are abolished and State provision made for the dependants of workers whilst they are undergoing sanatorium treatment, if the treatment survive many years the fierce criticism to which it is now being exposed. Treatment at present resolves itself into open windows, cough mixtures, and cod-liver oil. Large numbers of men are dependent for their daily bread (that is, their fixed incomes) on clubs of various kinds. Let the State appoint officers to deal with the sick and ailing children in the schools, and the inevitable result will be that their parents will cease to pay into the "doctor's club." Many citizens of this city decline to enter clubs, for they say, "I will go to the 'orspital free when I want anything."

Dr. Moore regards it as inevitable that the State will take over the hospitals. What is to become of all the endowments and the trusts connected with them? He assumes that the staffs will be paid for their services, and that abuse will be ended by the enforcement of an impossible wage limit. If the State controls the hospitals, the result must be that they will be open to every applicant (since all must pay directly or indirectly by taxation to support them), as the schools are now. Thus the doom of general practitioners, except those few that work amongst the upper classes, would be sealed. For a small proportion of State service men the outlook for a moderate income is good. For the bulk of the profession the outlook at the present time is "wrop in gloom."—I am, etc.,

Coventry, June 6th. VAUGHAN PENDRED, M.D., F.R.C.S.

PUBLIC MEDICAL SERVICE.

SIR,—The whole case of the proposed public medical services as they are to affect the profession seems on analysis to resolve itself into a matter of unanimity or the reverse in the ranks of the profession at large.

There appears to be no doubt that if a general consensus of opinion is favourable to a solid stand against all existing club and contract work below a well defined and remunerative scale, then our position can be assured.

Careful readers of their JOURNAL will note how the profession in France is exploited for State purposes, and it rests with us to place before the State, when asked, a practical *modus operandi*. I note to-day the letters of Drs. Milligan and Taylor on this subject. The former has not observed the weak spot in the National Deposit system—namely, that of a long illness practically placing the member in a temporary state of pauperism unless further funds are forthcoming. Under a State aid system our fees would be anyhow assured; but a payment of 20s. for eight visits within two miles and sixteen days' medicine cannot be deemed extravagant, as on the Deposit

Society scale. Here you will further note there is a fair scale of fees for all ordinary injuries and operations, and settlements are made monthly, which to my mind is a great desideratum.

Let us, then, for a moment examine the conditions on which a form of unionism amongst medical men would be arrived at·

1. A union created for the purpose of fixing conditions on which medical service can be procured. The difficulty arising here is the great number of practitioners concerned.

2. A union for organizing and enforcing a scale of fees—as a rule, fixing the minimum of tariff for services required. This appears the essential but most difficult of problems facing us.

3. A union subordinating itself to a central organization acting in the interest of all equally in return for a surrender of their individual liberty in this contract section of practice. This is much on provident dispensary lines.

The model outline in your issue of May 7th combines to a great extent the above degrees of a possible medical union, and as such should be acceptable to the contract worker as a practical instrument for the Government to work by. For let us once and for all dismiss the notion of the sickness and invalidity schemes being shelved by any future Government—it is a thing of the near future.

A personal referendum, as suggested by Dr. Milligan, is essential for the *whole* profession; but further, the Association should approach all governing and educationary medical corporations without delay to urge the matter on and obtain signatures from those *about* to qualify.—I am, etc.,

Hartland, May 20th. A. L. MARTYN.

SICKNESS AND INVALIDITY INSURANCE.

The Model Rules.

SIR,—The correspondence in the JOURNAL has been almost entirely in condemnation of any extension of the club practice system. The system of "unlimited medical attendance" for a "nominal yearly payment" is radically wrong. The patient and doctor are often dissatisfied. The medical service of the future must be based on the system of "reasonable payment for work done." The National Deposit system may not be perfect, but it is based on this principle, and is more satisfactory than ordinary club practice. Dr. Fothergill has suggested that a referendum be taken amongst the members on two questions (see BRITISH MEDICAL JOURNAL, June 4th, page 1380, column 2). I trust this proposal will be acted upon, but would suggest that the profession outside the Association should be canvassed. Also that a postal vote be taken, as many medical men cannot attend our meetings. The vote could be probably most easily secured if each Division would undertake the canvass in its own area.

In our negotiations with the Government we must be able to prove that contract medical service is most unpopular. Also that in some parts of the country the club system cannot get a foothold. If the whole of the medical profession can be united on this most important principle of "payment for actual services rendered," the Government may reasonably be expected to comply therewith. All forms of club and contract medical attendance ought, as far as possible, to be abolished. Poor Law, police, postal services are unsatisfactory, because very often the services rendered are far in excess of the remuneration.—I am, etc.,

Bacup, June 6th. JOHN BROWN, M.D.

SIR,—Let us suppose that under a revised Poor Law the destitute are attended to in illness, and, in a kindly but by no means lax or careless manner, those who for the time are without the means of obtaining medical treatment (either an emergency or where treatment is expensive or prolonged). None of these interferes with the ordinary doctor's emoluments.

Above these come workers in more or less regular employment. The Public Medical Service scheme applies to them. There is no mention of "charity," so that we construe it on strictly business lines. We look to see what is to be the standard of payments we are to receive per case, and per attendance; the two, I think, in contract practice should go together. But this most essential matter is not included in the scheme.

Some have proposed a charge of about 10s. per annum. This I do not consider too much, and there might very well be a bonus returned or carried forward for those who have required little of the doctor's services in the year. The strongest opponent of any alteration of present methods whom I have met with is a man who accepts his yearly cheque for 4½d. a visit. He competes thus with shilling dispensaries. His patients pay 6s. 6d. per annum. I know men who accept 13s. per annum for a family of three or more, less expenses 20 per cent—that is, about 11s. 6d.

In the business point of view such arrangements are extremely unsatisfactory, not only for those who accept such appointments, but for their competitors.

Again, what is the machinery for working the scheme? There is none, except in the existing societies, which are all in the hands of the despised "layman," on whom at every meeting members rise to move votes of censure. All those benevolent schemes—hospitals, dispensaries, free or provident—are managed by business men, and not by members of our profession. An occasional medical governor seldom exerts any influence, and contents himself with a purely ornamental position as far as administration is concerned. I was very gratified to be present at a meeting of representatives of institutions—hospitals and sick clubs, etc.—specially dealing with the West End of London. The cordiality and friendliness were most marked towards each other, and towards the profession generally, forming a contrast to the goings-on in other parts of the Branch.

If, therefore, we are to accept any scheme of fixed weekly payments at all, the first thing is for the members of each Division to make up their minds (1) as to the absolute *minimum*, and (2) also the amount of pay that is *desirable*, so that by successive annual increments it may perhaps be arrived at. The second essential is to make friends with those charitable societies. Their experience will be useful, and they will all be willing to make some change if the need for it be shown; and even the slightest change should be accepted, while the pressure should be kept up for years if necessary.

It need hardly be pointed out that the individual is almost absolutely powerless, and that the most exacting loyalty is demanded. Perhaps I should have put this first among my requirements, but I regret that I have to mention what ought to be obvious. The need for reform and mutual loyalty can nowhere be greater than in the metropolis. If State insurance be seriously proposed the experiment will begin here. Yet, serious as the urgency is, I find from the SUPPLEMENTS of the last twelve months almost no indication that the metropolitan Divisions are taking the thing seriously.[1] As to our Branch Council, the Medical Charities Committee is reported to have met twice in twelve months, once being the formal first meeting. It required but this to show the total indifference of our present rulers to the pressing wants of the rank and file.—I am, etc.,

London, W., June 6th. G. C. CRICHTON.

INFLUENCE OF POSTURE IN PHYSICAL EXAMINATION.

SIR,—Dr. W. Gordon's paper on the rightward edge of cardiac dullness would be interesting if it were accurate; but, in my opinion, his conclusions are the very reverse of the truth, unless his term, "percussionally invisible," of which I heartily disapprove, has some hidden meaning which I do not quite understand or appreciate. His method of percussion is not described, but from his diagrams I am led to the conclusion that his cardiac areas are somewhat of a compromise between the superficial and deep cardiac dullness, and the following sentence shows that he makes no attempt to delineate the right margin of the heart:

> In the recumbent posture the leftward edge of dullness almost reaches the leftward limits of the heart. The rightward edge of dullness, bounded, as it generally is, by the midline of the sternum, is very far from corresponding with the heart's rightward limits.

The superficial cardiac dullness is of no value in estimating the size of the heart, and it is the complete area of the heart which we should always endeavour to map out; this can be fairly accurately done by percussion, even in extreme cases of emphysema, where the whole heart is overlapped by the lungs, and it can be more accurately done by the pleximeter than with the orthodiagraph, notwithstanding Dr. Hertz.

[1] Chelsea and Hampstead made their arrangements, I think, the previous year.

I do not know who first described the postural variations in the size and position of the heart, though I thought it was a matter of ancient history; but, in my opinion, the man who has done most to explain those conditions is Dr. Albert Abrams, of San Francisco. He has shown that in cases of cardio-splanchnic paresis, which are often associated with orthostatic albuminuria, in the recumbent posture the right side of the heart becomes distended and the liver shrinks, while in the erect posture the very reverse happens. I have often found in these cases that in the recumbent posture the right auricle extended 2 to 2½ in. to the right of the mesial line, and the lower margin of the liver only reached the costal margin; while in the erect posture the right auricle may not go 1 in. beyond the mesial line, but the liver will extend a good fingerbreadth below the costal margin. Dr. Abrams has also shown in his description of the lung and cardiac reflexes how rubbing of the chest alters the size of the lungs and heart, and I constantly make use of this information in chest therapeutics. I have also shown the great reduction which takes place in the size of a healthy heart during the Valsalva experiment.—I am, etc.,

Liverpool, June 4th. JAMES BARR.

SIR,—A great deal has been written about postural shifting of the heart, a subject of much clinical importance. Concerning it it is well to remember that the right side of the heart—which so far as percussion is concerned has hitherto been wiped off from the student's slate—is in reality the steady side, although it is more liable than the left to physiological fluctuations in size. Unlike the left ventricle, unattached and mobile, the right auricle is "let in," and pivoted closely into the floor of the pericardium at the foramen pro vena cava. Moreover, it is vertically hinged as it were, though in a looser fashion, along the axis common to the inferior vena cava and to the superior vena cava (the latter being itself anchored to the spine by the vena azygos major). These, together with the pulmonary veins, are the close attachments of the heart, its loose attachments being, in addition to the pericardial collar, the aorta and the pulmonary artery, both of them practically right basic attachments. The attention which Dr. William Gordon calls to the right boundary of the heart could not, then, be better justified. He deals, however, not with the more important subject of the lateral displacements, but only with the effect upon our percussion results of a sagittal gravitation of the heart. Here again we should realize that, even under violent exertion, we are saved from the danger of much cargo shifting by the circumstance that the right heart is "well and truly packed" on the wedge principle, and works up and down on the anterior slope of the liver.

With special reference to the examination of the heart, the facts he points out have long been well known, though disregarded in students' textbooks; and, although their elementary discussion is almost an anachronism at the eve of the second decade in the twentieth century, it is manifestly needed. In reality, bad heart disease seldom lies flat, and in the out-patient room, too, the usual examination is in the upright posture. But, granted that the supine decubitus inflates the sternal fringe, this local increase in the pulmonary resonance is hardly an excuse for cutting out the entire right parasternal portion of the heart's area from our percussion outline. The correct outlining, irrespective of posture, of the entire heart was antecedent to the skiagram,[1] not only in its anterior percussion, but also in its dorsal percussion, although the publication of the latter was longer delayed (cf. various papers since 1896). For many years, too, the position of the right "edge" of the heart has been the subject of measurement—by some in millimetres, by others in the more mysterious quantity of fingerbreadths. We know where it is in the dead body; we can now see that it occupies the same place in the living, and we might readily percuss it for diagnosis, if only we would use sufficient care and the suitable methods.

Dr. Gordon's paper is specially welcome, as even the *x* rays have hitherto failed to enforce this urgent reform in our teaching of percussion. He rightly appeals to the orthoskiagram. The fact is that anything that is to be seen there is also to be percussed, and should be. He may perhaps forgive me for calling attention, in a good cause, to the discrepancy in general configuration between his outlines and those of the orthoskiagram which he depicts. This is nothing more than the accepted orthodox discrepancy. The approved precordial dullness outline is usually presented to us shorn not only of its right parasternal but also of its no less essential upper sternal extension—as though the sizing of the prevascular dullness, that is of the great vessels, were of no practical account in the study of disease. The prevascular percussion, not a difficult matter, has been practised and described for the last twenty years,[2] and, it is to be hoped, may perhaps now begin to be taught. It may have been regarded as devoid of any practical purpose; nevertheless it has well served that of diagnosis.—I am, etc.,

London, W., June 5th. WILLIAM EWART.

SIR,—In emphasizing the effect of posture on the percussional area of the heart, Dr. W. Gordon has rendered a very useful service, as the fallacy to which he draws attention is not sufficiently recognized.

The influence of posture is, however, by no means confined to the heart, but extends to all the organs amenable to physical examination. That posture—or, in other words, the action of gravity—also enters largely into the subjective arena, is evident from the various positions which patients assume for comfort. One of the most striking examples of this is the upright or forwards attitude which patients with cardiac embarrassment adopt. Although, as Dr. Gordon states, the heart appears larger to percussion in the erect posture, it is in reality smaller. In the recumbent position the breadth of the heart is increased by the blood gravitating into the right auricle from the splanchnic veins. Hence it is that in cardiac distress the patient seeks the upright position in order to keep the blood in the splanchnic reservoir.

In the recumbent position, besides gravity, another factor comes into play, tending to diminish the cardiac area of dullness. This is the inflation of the anterior portions of the lungs. It is not, perhaps, generally perceived that in this position the respiratory excursion is considerably greater, and the percussion tone consequently more resonant. Lying on the back is not the only method of altering the percussional area of the heart. If the patient lies on the left side the heart moves about 1 in. to the left, and about ½ in. upwards. Lying on the right side the heart moves ¾ in. to the right, and about ¼ in. upwards.

The influence of posture on percussion of the liver is considerable. In the recumbent position the intestine and stomach, with their gaseous or solid contents, act as disturbing factors in determining the lower liver border. But if, when standing, the patient inclines his body backwards, the edge of the liver comes into contact with the abdominal wall, and the same is obtained in the knee-elbow position from the action of gravity. The pressure within the abdomen being positive its contents are largely under the influence of gravity. But the organ which is most sensitive to posture is the spleen. About ten years ago I observed certain cases in which a stomach note only was obtainable over the splenic area with the patient lying on the right side (the conventional position for percussing out the spleen), and yet a dull area was most marked when the patient sat up. In the course of a visit to St. George's Hospital I mentioned this to Dr. Ewart, who confirmed it there and then on one of his cases, and it was subsequently recorded in the *Lancet* (May 31st, 1902, p. 1527). Like Dr. Gordon, I invite attention to these matters, as they are not stated in textbooks, and yet are of high practical importance.—I am, etc.,

London, W., June 6th. A. G. AULD.

CANCER OF THE RECTUM.

SIR,—The matters involved in the discussion between Mr. Cripps and Mr. Handley regarding the pathology and treatment of cancer of the rectum are of extreme interest and importance. Leaving on one side the problem of lymphatic permeation, about which even its discoverer admits that we know little, the main point at issue is whether cancer of the rectum is best attacked from below or by the combined method. The exact comparison of

[1] *Cardiac Outlines*, 1892.

[2] Cf. *Cardiac Outlines*.

the two methods by statistical results is impossible, because hitherto the combined method has not been employed for a sufficient number of cases, and the tendency has been to reserve it for those presenting signs of obscurity or difficulty. But there are not wanting figures which show that the older methods have both a high mortality and a large percentage of recurrence. For example, Zinner gives a careful summary of the results obtained in Hochenegg's clinic in Vienna.[1] Out of 201 cases submitted to radical operations by the perineal or sacral methods, 34 died (16.8 per cent.); of 137 cases which could be traced afterwards, 71 had recurrence of the disease and only 37 (25 per cent.) were alive and well after three years. In the cases of recurrence the cancer reappeared locally in no less than 72 per cent., as metastatic growths in 24 per cent., and in the lymph glands in 4 per cent. I have chosen these figures because they are the largest to hand and because they represent the results obtained by various surgeons and are reported by an independent observer. I made an attempt to collect some figures bearing on this point in 1908[2] from the various English hospitals, and found that in 1907, out of 108 radical operations for cancer of the rectum, 26 had died, giving a mortality of 24 per cent.

So that it is evident, if judged by collective results, the older operations for rectal cancer have a high mortality, and that more than half of the surviving cases die from recurrence of the disease, which is usually local.

The combined method evidently presents certain obvious advantages, but hitherto it has had a very high mortality. I believe this is due partly to the method being new, but chiefly to its having been reserved for cases in which the attack from below would have been impracticable—that is, for the most severe cases. Within the last twelve months I have had two cases which illustrate so well the merits of the combined method that I will venture to give them very briefly.

J. M., man, aged 47. Operation August 29th, 1909. Growth encircling the bowel, within easy reach of the finger, and freely movable. Patient was in excellent general condition. A median laparotomy, however, revealed several metastatic growths in the liver, and excision was therefore abandoned.

It seems to me that the opportunity afforded of examining the liver by the abdomino-sacral method constitutes by itself sufficient reason for its wide adoption.

S. B., man, aged 54. Movable growth high in the rectum. Operation June 1st, 1910. Patient was very fat, and the space in the pelvis much reduced thereby. By the abdominal route a hard cylindrical growth was found at the junction of rectum with pelvic colon. The upper part was firmly growing to the fundus of the bladder. A part of the latter was resected —measuring about 1½ by 1 in.—and the growth mobilized by division of the mesocolon and superior haemorrhoidal vessels. A loop of colon was brought through the parietes outside the left rectus for subsequent colostomy. The removal of the growth and the anastomosis was completed by the sacral route. Up to the present the patient is doing well.

If this case had been attempted from below it must have been abandoned as impossible. I am surprised that Mr. Handley attaches so much importance to the question of shock in the combined method as applied to male patients. One of the most satisfactory points about the method as I have seen it has been the remarkable absence of shock. It has repeatedly been remarked upon by the anaesthetist as being much less than in the simple transsacral method. In the case above described, for example, although the operation lasted for two and a half hours, the patient's pulse was never over 100, and was so good at the end that it was not necessary to give a saline infusion. I attribute this absence of shock to the fact that the tissues are cleanly divided, instead of being dragged upon and loaded with heavy clamps. In the only two cases in which severe and alarming shock occurred in my practice both the patients were women, and in both it coincided with the separation of the growth from the front of the sacrum, and I have no doubt was due to the dragging upon the pelvic nerves.—I am, etc.,

Clifton, June 5th. ERNEST W. HEY GROVES.

GASTROPTOSIS.

SIR,—In all pioneer work there must necessarily be many provisional conclusions and retracement of steps is often unavoidable.

On refreshing my memory of the visceroptosis article in the last edition of Allbutt and Rolleston's *System of Medicine*—it may indeed be said of Professor Keith "Nullum quod tetigit, non ornavit"—I was glad to find correct my impression that, although under the head of etiology, all reference to the vitiated method of respiration hypothesis had been omitted, there had been no explicit disavowal of the very strong position taken up in the Hunterian Lectures of 1903, so that if I have done Professor Keith an injustice in quoting views which he has seen good reason for abandoning, my act was without intent and without knowing he had changed those published views.

The words of my criticism were: "Enteroptosis is not *primarily* respiratory; it is *primarily* postural," my evidence having led me to the conclusion that there must be an antecedent postural defect, first, of the spine (incomplete extension or perverted curvation), and, secondly, of the thorax (sinking and collapse—marked expiratory position) before the diaphragm can commence its deforming activity in urging the abdominal viscera on their downward course and putting strain on their various ligaments.

I therefore think that Professor Keith is in error now in so precipitately climbing down from his main original contention as to the causal influence of a vitiated method of respiration in the genesis of ptosis.

In the consideration of all the internal relations of parts and functions of the living machine, the following *a priori* considerations in my opinion should be kept well in mind:

1. The forms, postures, and movements of vertebrate animals are conditioned primarily by the endoskeleton. Of this framework the spinal column is the principal internal fulcrum which chiefly maintains the form of the animal and the efficiency of its muscular actions in relation to the resistances of the environment.

2. The chief resistance to be met by terrestrial animals is the gravitative force.

Professor Keith remarks in his letter, "By applying the term postural to the condition of visceroptosis, we are assisted only a little way to a full understanding of its nature and cause." I entirely agree with him, but I think it must be conceded that the propositions that I have put forward—whether I am right or wrong—go much further than applying an adjective to the condition, or than the recognition of its visible proximate initiation.

Based on what I believe to be the chief causative factors in most cases, I have suggested means of invading the *circulus viciosus* by training the patient's will to correct directly his postural and respiratory defects and through these indirectly those of circulatory stagnation in the abdominal pool, deranged intra-abdominal pressure, deficient peristalsis, gastro-intestinal toxaemia, and neurasthenia. All the same, I recognize the many gaps in our knowledge indicated by Professor Keith, and especially as to the exact part played by the viscero-muscular reflexes.

Having accidentally stumbled on the fact, while seeking to abolish habitual excessive negative pressure in the air tract, strains of the vocal apparatus, and forcing of the voice as common exciting causes of various throat or nose diseases, by the training I have previously indicated, in numerous patients (who had also gastroptosis, neurasthenia, and dyspepsia), that such patients recovered from the latter group of symptoms without other special treatment, I have been led to bring the matter forward with a view to its more extended utility, and am anxious to show any colleague engaged in the serious investigation of ptosis what I mean and what I do in more precise detail than can perhaps be gathered from what I have written.—I am, etc.,

ROBT. HY. SCANES-SPICER, B.Sc., M.D.Lond.

London, W., June 4th.

GASTROSTAXIS.

SIR,—Dr. C. Bolton's quotation from the *Lancet* of November 3rd, 1906, p. 1189, is not altogether happy, if he wishes to justify "general" misuse of an excellent word. For in the paragraph referred to gastrostaxis is called not only a disease, but a symptom. How it can be both I do not know, any more than I can understand how epistaxis can be "due to an oozing of blood from nasal mucous membrane," as the same paragraph states. Epistaxis *is* oozing, or, more strictly, dropping, of blood from the nose, just as gastrostaxis is oozing of blood from the

[1] *Langenbeck's Archiv*, 1909, Bd. 90, p. 933.
[2] BRITISH MEDICAL JOURNAL, 1908, ii, p. 1008.

stomach, though in the former case the word has been extended to all kinds of haemorrhage. Both are symptoms and nothing more. To assert, therefore, that there is a disease characterized by pain and gastrostaxis without ulcer may be right and the statement is intelligible. To call gastrostaxis a disease is clearly wrong and leads to confusion, which is not lessened by reliance on previous error, however unintentional such error originally was.—I am, etc,

London, W., June 4th. E. C. Hort.

Sir,—In his note on gastrostaxis (June 4th, p. 1347) Dr. Hale White reiterates the arguments he used in his original paper, so that, as I have already dealt with these arguments, it would seem unnecessary for me to reply to his criticisms. There are, however, one or two new points raised by him about which I should like to make a few remarks. The disease in question occurs chiefly between the ages of 20 and 40 years, and therefore Dr. Hale White objects to my including 2 cases aged 49 and 69 years respectively within the limits of this disease. In his original paper, however, he includes 4 cases, aged respectively 41 (Case ix), 54 (Case xviii), 44 (Case xix), and 47 years (Case xxvi) amongst his 29 cases of gastrostaxis. My 3 cases, as I stated, were selected with the definite purpose of showing that acute ulcers may bleed although they are almost healed.

With regard to the finding of multiple bleeding points, Dr. Hale White states that many acute simultaneously active ulcers are very rarely seen at an autopsy, that the descriptions given hardly describe active ulcers (such descriptions being "haemorrhagic erosions," "small areas from which haemorrhage had occurred," "a congested patch of mucous membrane," "many bleeding points"), and that the chances that numerous minute acute ulcers would be all quite close to one another and all bleed at the same time must be remote. The statement that multiple acute ulcers are seen very rarely can hardly be correct in view of the fact that such ulcers are multiple in about 54 per cent. of cases according to London Hospital statistics. In nine recent cases observed by myself the ulcers were multiple in six. In my paper I gave all my reasons for believing that the description of bleeding points found at an operation could hardly be relied upon, and a *post-mortem* description can only be of value if it be a microscopic one, and in none of the cases described by Dr. Hale White is such a description given. Further, it is not infrequent for acute ulcers when multiple to be situated near together, and this is not an original observation of my own. In the three cases referred to above the ulcers were multiple in two, and in both cases the scars or ulcers were quite near together. Since an ulcer may bleed until it is completely healed, it is probable that multiple ulcers, even in different stages, would give rise to the appearance of multiple bleeding points.

I cannot follow Dr. Hale White when he says that gastric haemorrhage in disease of the appendix is more likely to be due to an endothelial poison causing gastrostaxis rather than to acute gastric ulcer. Appendix disease is of bacterial origin, and we know that in bacterial diseases acute gastric ulcer is quite common, far more so than is gastrostaxis in such diseases, so that the probability is greatly in favour of the bleeding being due to acute ulcer. The literature upon the question of ulceration of the stomach due to various bacteria is very abundant both on the clinical and experimental sides. It is quite true that bacterial diseases may cause gastric ecchymoses, but such patients may never vomit blood at all, whereas a gastric ecchymosis is very often the starting point of an acute ulcer, as I pointed out in my paper. The only way in which this controversy can be settled is by the systematic and thorough examination of *post-mortem* specimens, which has not hitherto been done.—I am, etc,

London, W., June 4th. Charles Bolton.

AUSCULTATORY PERCUSSION.

Sir,—Dr. Calwell misunderstands me if he thinks that I write from the point of view of an *x*-ray specialist and that I regard the *x* rays as infallible. I write from the point of view of a general physician, who has had the curiosity to test the accuracy of a method of examination, which he, in common with Dr. Calwell and many others, has long regarded as very valuable.

After a bismuth meal the stomach can be seen with ease on the fluorescent screen. There is no possibility of mistaking it for anything else, although abnormalities in shape and activity are naturally often difficult to explain. The fact that a leading *x*-ray specialist has misinterpreted what he saw in a certain abdominal case, the nature of which Dr. Calwell does not tell us, is ridiculously irrelevant. We may draw an erroneous conclusion from the presence of an area of dullness in the chest, but that does not mean that the area of dullness is not there, nor does it indicate that the knowledge gained by percussion of the chest should henceforth be disregarded.

I have frequently marked out the stomach by auscultatory percussion and friction, and others have done it for me. I have then placed a metal wire over the outline, and have found that in no case did it correspond even approximately with the outline of the shadow of the stomach. What could be more conclusive?

I quite agree with Dr. Calwell as to the value of inflation of the stomach. It is a method I constantly use in the out-patient department when there is no time for an *x*-ray examination. But after inflation auscultatory percussion is superfluous; inspection, palpation, and ordinary percussion are sufficient. Laënnec himself demonstrated the value of auscultatory percussion in determining the outline of a cavity filled with gas and in contact with the body wall, and I have never denied the accuracy of the method in this connexion. What I have criticized is the employment of auscultatory percussion and friction in estimating the size and shape of the stomach and intestines without inflation. Moreover, inflation is a method which only gives results comparable with a quite artificial normal standard, as nobody can pretend that the shape of the stomach inflated with gas and examined in the horizontal position even approaches that of the stomach under natural conditions. It is for this reason that I prefer to examine the stomach with the *x* rays, by means of which it is possible to ascertain its true shape, size and situation in both the vertical and horizontal positions, the degree of its tone, the activity of its peristalsis, and the rate at which its contents pass into the duodenum.

The fact that every medical man can practise auscultatory percussion, whilst only a few are in a position to use *x* rays, is no reason why auscultatory percussion should be employed now that it has been proved to give erroneous results, or why *x* rays should not be used whenever it is possible.

If Dr. Calwell will honour me with a visit the next time he is in London, I shall be delighted to show him where the stomach really is, after he has marked out by means of auscultatory percussion where he believes it to be. He will then, perhaps, recognize that the reliability of a method does not depend upon the number of years it has been practised.—I am, etc,

London, June 4th. Arthur F. Hertz.

Sir,—In a little work, *Clinical Memoranda*, by Dr. Keith and myself, we draw attention to the value of auscultatory percussion, which is of great service not only in the diagnostic investigation of the soft parts, as suggested by your various correspondents, but also in the exact location of the site of fracture of bones.

For this purpose a single wooden stethoscope is employed, which is placed upon one side of a suspected fracture, while the bone is gently percussed on the other. If there is a fracture, the vibratory thrill which should reach the ear is lost. If, therefore, the bone retains its normal conductivity, there can be no fracture between the stethoscope and the spot percussed. The position of a fracture can thus be exactly located by approaching the stethoscope towards the part percussed. This method is specially useful in fractures of the ribs, and also in those of the clavicle, where the breakage has occurred in that bone between the conoid and trapezoid ligaments.

In fractures of the forearm affecting the lower end of the radius or the styloid process of the ulna, the stethoscope should be placed in the first case on the thenar end, and in the second upon the hypothenar eminence, while the hand is forcibly extended.

A slight fissure in the vault of the skull causes the sound to be muffled, compared with that found on the opposite side.—I am, etc,

Driffield, E. Yorks, May 28th. A. T. Brand, M.D.

STRONG WINDS AND PHTHISIS.

SIR,—In your leading article upon Dr. Gordon's book you state that he concludes "that the mischief is wrought by the effect of the wind upon the inhabitants as they pass along in their daily walk."

Now, Sir, I will back "the tightly closed window" against "the daily walk" any day. Some time back I resided in a small seaside village, which has a reputation as a health resort. Yet I found cases of definite phthisis, tuberculous glands, and "weak chests" common amongst the natives. In that place there are cold, wet rains in the autumn and during the first four months of the year. Walk down the village street—every window is shut night and day. On two occasions I had to call in the carpenter and had the windows bodily removed. A window that had been pasted up with wall paper for many years undoubtedly caused one case I had.

If people are crowded together in badly ventilated rooms, it matters not if they are at Okehampton or Whitechapel, at Exeter or Shoreditch. The colder the wind and the more rain it carries the more tightly will the window be closed.

It is far from my wish to make light of Dr. Gordon's ten years' work, but ten minutes' common sense must connect the closed windows with the disease.

In those districts where the cold, wet wind lasts long, the windows will hardly be open at all, and phthisis will abound.

Let the public defy the rain and keep their windows open and there will be less phthisis. Do not blame the rain-bearing wind.

Those that live in England—even those that live on Dartmoor—must put up with our weather. In the words of James Whitcomb Riley—

> "It ain't no use to grumble and complain;
> It's jest as cheap and easy to rejoice;
> When God sorts out the weather and sends rain,
> W'y, rains my choice."

To which I would add:—

> "Keep your windows open, let it rain or hail,
> The hand of Death shall not prevail;
> Close your window, tightly fix the frame,
> 'Tis good as calling him by name."

—I am, etc.,

Symonds' Yat, May 29th. JAMES TURLE.

SIR,—I much appreciate Sir Hermann Weber's very kind reference to my book, as also I greatly appreciate the very kind way in which the BRITISH MEDICAL JOURNAL has reviewed it. But I must regretfully differ from what I believe to be his meaning with reference to the comparative influence of dry winds.

It should be remembered that I have most carefully explained in my book (p. 10) that it—the book—has nothing to do with the influence of winds on the *course of existing cases* of phthisis; it *deals simply with their influence on the prevalence of the disease.* My experience in work of this sort has convinced me that, if we are successfully to disentangle the influences which tend to modify phthisis mortality, we must keep apart their effects on prevalence and their effects on course. When, therefore, Sir Hermann says that "dry north and east winds are quite as injurious as the rain-bearing winds," I infer that he means that dry winds increase phthisis death-rate as much as do rain-bearing winds. If this inference is correct, I am sorry I must entirely differ from him. My findings on the point are summed up as follows (p. 35 of my book):

> Dry winds seem to have little effect as compared with rainy winds. The plains of Colorado, South Africa, and inland Australia furnish ample evidence that strong dry winds, even when sometimes laden with dust, can coexist with low phthisis mortality. That they have some effect seems, however, probable. Thus, in Northern Nigeria, where the disease is rare, the cases which do occur present themselves after cold dry winds have been blowing.
>
> In Chapter III it will be seen that winds from easterly directions—that is, relatively dry winds in Devonshire—did not interfere with the demonstration of the influence of the rain-bearing winds from westerly directions.

If Sir Hermann has evidence on this point with which I am unacquainted, I shall be most grateful to him if he will publish it. All that I can discover points in the direction I have indicated.

With regard to the words on page 1 to which he has taken exception, Sir Hermann Weber is under a misapprehension. They were quoted from another authority. I am entirely in accord with all that he says as to the most suitable site for a sanatorium.—I am, etc.,

Exeter, May 4th. W. GORDON.

THE SURGICAL TREATMENT OF GLYCOSURIA.

SIR,—My experience is undoubtedly at variance with that of Dr. Chalmers Watson, but until it is certain that our methods are precisely the same it is impossible to profitably compare our results. At present I am not at all clear that they are, or that Dr. Watson himself always uses the same method, for I find it rather difficult to reconcile the statement which he made in his letter of May 14th that "in every case of glycosuria, in my experience, the pancreatic reaction is positive," with one in his second letter of June 4th in which he states that "complete fermentation of the urine invariably has the effect of rendering the reaction negative." If fermentation, which is an essential part of the process with sugary urines, *invariably* renders the test negative how can he have obtained a positive reaction in *every* case?

I do not claim that a positive pancreatic reaction is always associated with inflammation of the pancreas, but my experience with over two thousand cases clinically, and the experiments of myself and others on animals have shown that it is an indication of active degenerative changes in the pancreas, which are most commonly of an inflammatory type, provided that the test and control experiments have been properly and carefully carried out. I do not find that every case of diabetes gives a positive reaction, or that a negative result is invariably obtained when the presence of sugar in the urine necessitates a modification of the ordinary test. But as a negative reaction has been given by about 30 per cent. of the cases of glycosuria I have examined, and a positive result in about 69 per cent., many of the latter suffering from gall stones, cancer in the pancreas, etc., I am led to conclude that the results of the reaction, as I obtain them, are a useful aid in the diagnosis and prognosis of diabetic as well as of non-diabetic cases.—I am, etc,

London, W., June 7th. P. J. CAMMIDGE.

The Services.

ROYAL ARMY MEDICAL CORPS (TERRITORIALS).

FIRST LONDON DIVISION.

IN the divisional orders, with regard to attendance at camp, attention is called to the War Office letter requiring Officers Commanding to forward lists showing by units the numbers of men they recommend to be permitted to join camp with pay and allowances in spite of their not having completed the number of drills required by regulation to be performed before being eligible for pay and allowances. The General considers that a man should not be recommended for this privilege unless he has been prevented from completing his drills by some unusual or unavoidable circumstance, such as having joined so recently that time has not been available.

Attention is also called to the fact that saddlery for medical and veterinary officers is drawn and held by officers commanding units entitled to a medical or veterinary officer.

Certificates on Army Form "E" 661 have been granted to Quartermaster-Sergeant W. E. Lawrence, Second London Hospital, after attachment to the Royal Herbert Hospital, Woolwich, from March 1st to 31st, 1910; and to Sergeant J. Elvines, First City of London Field Ambulance, after a course of instruction at the R.A.M.C. School of Instruction, Aldershot, from April 1st to 28th, 1910.

SECOND LONDON DIVISION.

Lieutenant-Colonel W. B. Day, M.B., R.A.M.C. (ret.), has been appointed staff officer to the A.M.O., Second London Division, and took up his duties on May 31st, in succession to Colonel James Magill, C.B., M.D., appointed Organizing Secretary to the British Red Cross Society.

EAST ANGLIAN DIVISION FIELD AMBULANCES.

We are informed that the Administrative Medical Officer of the East Anglian Division, Territorial Force, Colonel Elliston, V.D., was able through the General Officer Commanding to offer the services of the four field ambulances of the Division for street duty in London on the day of the King's funeral procession. Had the authorities been in a position to avail themselves of the offer, it would have been possible to send from East Anglia at least 11 medical officers and 600 trained men with stretchers and all necessary medical equipment.

Public Health
AND
POOR LAW MEDICAL SERVICES.

PAYMENT OF DOCTORS CALLED IN BY MIDWIVES.

We have received from Mrs. Sidney Webb, Vice-President and Honorary Secretary of the National Committee for the Prevention of Destitution, 5 and 6, Clements Inn, Strand, London, W.C., a memorial which has been sent to all the members of the Houses of Lords and Commons. The memorandum is a criticism of Clause 17 of the Midwives Act Amendment Bill, 1910, which provides that the fee of a doctor called in by a midwife to attend a case coming under the rules of the Midwives Board shall be paid by the board of guardians of the Poor Law Union in which the woman resided. The memorial continues as follows:

That clause [17] proposes to compel *the Board of Guardians* to pay out of the Poor Rate the fee of the doctor whom the midwife is required to have sent for in an emergency, and (whilst, by implication, making the payment always "parochial relief") expressly to enable the Board of Guardians to declare the payment "relief on loan." The effect of this Clause, if enacted, would be—

(*a*) to make compulsorily into paupers thousands of thrifty and hard-working wage-earners' families, *without any application or consent on their part*;

(*b*) to subject the unfortunate women and their households, notwithstanding their thrift and provision, *compulsorily* to the hated visits and investigation of the Poor Law relieving officer and to the stigma of pauperism;

(*c*) to impose on these thousands of working-class households a new pecuniary liability (in the form of having to repay to the Board of Guardians whatever fee the Board may choose to pay the doctor), for which there is at present no statutory warrant.

The further effect of this importation of the Poor Law, the Board of Guardians, and the relieving officer into the administration of the Midwives Act—with which, so far as the statutory arrangements are concerned, they have hitherto had nothing to do—would be greatly to impede the working of the Act. The reluctance to summon a doctor in emergencies, which it has taken some trouble to overcome in midwives and patients alike, would immediately spring up again as soon as it was realized that the summons to the doctor involved the shame of pauperism, the necessity of attendance before the Board of Guardians, and the social disgrace of the visits of the relieving officer. The very object of the provision relating to dangerous emergencies would be largely defeated.

The position at present is that, whilst the midwife is peremptorily required by the statutory rules and forms to have a doctor sent for in dangerous emergencies, there is no express statutory provision for the payment of his fee. The patients who have, by thrift and foresight, already made the customary provision for the confinement—namely, the attendance of a professional midwife—are often unable to pay the extra fee for a doctor (amounting, as this often does, to the entire income of the family for a whole week), and accordingly the doctor frequently fails to get paid for an attendance in a dangerous emergency which Parliament has, in effect, insisted on in the public interest. In some places, in order to ensure medical aid, the midwives themselves have occasionally paid the doctors where the patients have been unable to do so. In others they have done this by a mutual arrangement, to deposit one shilling in respect of every case, thus forming a fund out of which, in any emergency, the doctor can be paid. But in most places no such provision is made, and, indeed, out of the exiguous earnings of the midwife none can be properly expected. In some towns—among them being Manchester, Liverpool, St. Helens, and Cardiff—the Town Council has been paying the fee, under Section 133 of the Public Health Act, whenever the doctor has failed to obtain payment from the patient. This arrangement (which has been made with the knowledge of the Local Government Board, and without any disapproval) has worked—to quote the words of the Departmental Committee itself—"very efficiently, and both without friction and at small cost to the community."*

Unfortunately, the Local Government Board, instead of asking all Local Sanitary Authorities to make use of this power, on the 29th of July, 1907, issued a circular to all the Boards of Guardians suggesting that they should make it known to medical men that the Guardians would be prepared (under the general powers of Section 2 of the Poor Law Amendment Act of 1848) to pay the doctor, "on being satisfied that the woman is too poor to pay the fee." No circular was sent by the Local Government Board to the Local Sanitary Authorities requesting them not to make these payments; and thus there has been created a special and quite unnecessary overlap—in some towns both the Town Council and the Board of Guardians agreeing to pay the doctor's fee, and neither having necessarily any knowledge of what the other is doing.

* Report of Departmental Committee on the Midwives Act (1909), 4822, par. 73 (p. 12).

Further difficulties and complications have arisen. The payment to the doctor, made under Section 2 of the Poor Law Amendment Act, of whatever amount the Board of Guardians may choose, without application or consent by or on behalf of the patient, is, in the opinion of competent legal experts, at present not "parochial relief." In some unions, at least, it is not treated as such, and not entered as such in the accounts, this procedure not meeting with disapproval by the District Auditor. The Local Government Board pointedly refrains from saying that it is parochial relief. As the Local Government Board now expressly declares,† it cannot be recovered from the patient or her husband. It cannot lawfully be declared "relief on loan," and if the Guardians choose to pay the doctor repayment cannot on any pretext be exacted from the patient or her husband. These things were, however, not pointed out to Boards of Guardians by the Local Government Board, and much hardship has, in different parts of the country, been caused to the poor. In most Unions the relieving officer has been sent to interrogate the patient or her husband as if they were applicants for parochial relief. Some Boards of Guardians have, without any application by or on behalf of the patient, and without even consulting her or her husband, treated the payment to the doctor as parochial relief to the patient and her husband, and have calmly entered and classed them as paupers in receipt of medical relief. Other Boards have summoned the husband to appear before them (involving loss of time and earnings) as if he had been an applicant for relief, and have sought to induce him to consent to the payment (assumed to be parochial relief) being made "relief on loan," and therefore recoverable. Other Boards, again, whilst aware that the payment is not legally parochial relief, and not entering the patient and her husband as paupers, have nevertheless applied to them for payment, exactly as if they had a legal right to recover the amount, without explaining that there was no legal liability to pay the sum, and that the guardians had no right to recover it. Many sums have been thus wrong, fully extracted from families in extremely poor circumstances who have been under the misapprehension that they had incurred a legal liability to the Board of Guardians. Many families have been placed in great distress by their efforts to scrape together the sums thus without any legal warrant demanded from them, and many others have been wrongfully subjected to the stigma (though without exclusion of the man from the Parliamentary register) of being classed as paupers.

Let no man believe that the wrong which the Poor Law Guardians have been doing to women is an imaginary one or a sentimental evil. The following is a report of a recent meeting of midwives:

> "A meeting was held at the East End Mother's Home on March 8th, at which Miss Paget presided, and there was a good attendance of midwives. The question of doctors' fees was discussed. The chairman spoke on the question, and then asked the midwives present to give their experience. All agreed that since the Guardians of both Boroughs had promised to pay the fee when the patient was too poor to do so they had not much to complain of with regard to the doctor, but a great many of those present spoke of the way in which the relieving officer went (in some cases the same day) and worried the patients with questions as to their power to pay the fee themselves. One midwife said her patient had been so upset by the officer's visit that her temperature went up, and the midwife feared she would have to send for the doctor again. In one case the father lost half a day's work because he was summoned before the board when he said it was impossible to pay both doctor and midwife out of his weekly wage of 21s., and inquiries were made at the firm where he worked to verify his statement as to wages. If the guardians are going to pay the doctor in necessitous cases, midwives feel they ought to have a different way of collecting information on the subject."

What it is now sought to do by Clause 17 of Lord Wolverhampton's bill is to legalize the action which the Guardians have been taking under a misapprehension of the law—to make the payment parochial relief, *irrespective of any application or consent*, and to enable the Board of Guardians, equally irrespective of any application or consent, to declare the payment to be "relief on loan," and thereby to render the patient and her husband *for the first time* liable for its repayment.

To impose the stigma of pauperism on these thousands of thrifty and provident families (who have actually made the normal provision for the expense of the confinement), and to subject them to a new and additional pecuniary liability to the Boards of Guardians (amounting, it is estimated, to about £20,000 a year in England alone), from which they are at present free, is already producing a storm of indignation, which will certainly increase and progressively hamper the proper administration of the Midwives Act. How would any effective administration of the Vaccination Acts be possible if a similar policy were adopted? The feeling aroused will, of course, be altogether out of proportion to the magnitude of the pecuniary issue. The total amount at stake in a town of 10,000 inhabitants may be estimated at not more than £6 per year, but this sum may fall with crushing weight on one or two poor families.

It is submitted that there is no necessity for making this matter one for the Poor Law or the Board of Guardians at all. The proposal to require the Board of Guardians to make the

† L.G.B. Memo. of April 19th, 1909, at p. 27 of Cd. 4822 (1909).

payment to the doctor in all the cases in which he applies for it, without the Guardians having any discretion, and without reference to the destitution of the patient, is quite alien to Poor Law practice. The authority administering the Midwives Act, defraying the expenses connected with that Act, and exercising disciplinary supervision and control over the midwives, is the County or County Borough Council. It is important not to open up any possibility of collusion between unscrupulous midwives and dishonourable doctors tempted to share fees. The payment of the fee of the doctor called in on emergency under the Act, in the interests of the Public Health, can therefore most suitably and conveniently be made by the County or County Borough Council as a matter of Public Health, *just as the County or County Borough Council already pays the fee of the doctor summoned by the police.* In both cases the amount of burden on the rates is insignificant—in a town of 100,000 inhabitants usually not £50 in a year—and the Public Health advantage is beyond all calculation. This is the course recommended by the witnesses* representing:

The British Medical Association;
The Society of Medical Officers of Health;
The Municipal Corporations' Association;
The Lancashire County Council;
The Nottinghamshire County Council;
The Manchester Town Council;
The Midwives Institute; and
The Central Midwives Board.

It was a misfortune that the Departmental Committee on the Midwives Act contained no midwife, and no member belonging to or representing the wage-earning class. That Committee, on which the Poor Law Division of the Local Government Board was very strongly represented, chose to disregard the overwhelming mass of evidence presented to it on this point; and (without assigning any weighty or conclusive reason against the arrangement, which they had themselves reported to be working "very efficiently, and both without friction and at small cost to the community") to recommend that the boundaries of parochial relief and of pauperism should be extended by statute in the way proposed by Clause 17. That recommendation was made the subject of instant protest, and is now strongly objected to by the great majority of the persons actually concerned—namely, the midwives and their patients, as well as by the British Medical Association and the Society of Medical Officers of Health. The Manchester Town Council has sent a letter to the Corporations of a number of other County Boroughs protesting against the payment being made by the Poor Law Authority at all. Resolutions of protest are beginning to pour in from the branches of the Women's Co-operative Guild, the Railway Women's League, and the Women's Labour League. Some Boards of Guardians—for instance, that of the Derby Union—have formally expressed their objection to being required to make the payments proposed. It is already evident that the subject will be made an issue at the elections, and that any such enlargement of the sphere of the Poor Law—still more any such compulsory pauperism—will call forth the strongest denunciation from all those claiming to represent working-class opinion.

That the recommendations of the Departmental Committee are in no way binding, and are, indeed, neither conclusive nor authoritative, is shown by the fact that in the very bill under discussion the Government has spontaneously departed from them (as stated in the official Memorandum prefixed to the bill) in various particulars in favour of other proposals.

In order to enable the bill to pass, and to secure to every medical practitioner the fee to which he is legitimately entitled for a service performed in an emergency in the interests of Public Health at the instigation of Parliament itself, it is submitted that it should be at once announced that Clause 17 will be amended by the substitution of the words "local supervising authority" for "Boards of Guardians for the Union," and that Sub-Clauses 2 and 3 and all reference to parochial relief or relief on loan will be omitted.

SCIENTIFIC RESEARCH.

IN connexion with the annual grant voted by Parliament in aid of scientific investigations concerning the causes and processes of diseases, Mr. Burns, the President of the Local Government Board, has authorized the following special researches:

1. A continuation of an investigation into protracted and recurrent infection in enteric fever, by Dr. Theodore Thomson, Medical Inspector of the Board, in conjunction with Dr. Ledingham of the Lister Institute.

2. A continuation of an investigation into protracted and recurrent infection in diphtheria, by Dr. Theodore Thomson and Dr. C. J. Thomas.

3. A continuation of an investigation into flies as carriers of infection, by Dr. Monckton Copeman, Medical Inspector of the Board, in conjunction with Dr. Graham Smith and Mr. Merriman of the University of Cambridge, Dr. Nicoll of the Lister Institute and Dr. Bernstein of the Bacteriological Laboratory, Westminster Hospital.

4. A continuation of an investigation on the injurious gases evolved during artificial illumination, by Dr. J. Wade, D.Sc., of Guy's Hospital.

5. A preliminary inquiry into the relationship of certain special types of bacteria to the diarrhoea of infants, by Dr. C. J. Lewis of Birmingham, Dr. Sheila M. Ross of Manchester, Dr. Thomas Orr of Shrewsbury, and Dr. R. A. O'Brien of the Lister Institute.

* Report of Departmental Committee of the Midwives Act (1909), Cd. 4822, p. 27.

MEDICAL CERTIFICATION OF PAUPER LUNATIC.

H. B. D. states that he had a female pauper lunatic (who had attempted to cut her own throat) removed to the asylum with the assistance of the relieving officer. Our correspondent signed the necessary certificate and handed it to the latter, who then secured a magistrate's signature, and arranged for the patient's removal. The guardians now decline to pay our correspondent's claim—21s., and he asks whether they are liable for his fee.

*** By Clause 285 of the Lunacy Act, when a justice directs a lunatic, or an alleged lunatic, whether a pauper or not, to be examined by a medical practitioner, the justice directing the examination may make an order upon the guardians to pay such reasonable remuneration to the medical practitioner as he (the justice) thinks proper; should such justice refuse to make such order, by Clause 301 of the same Act any person aggrieved thereby may appeal to quarter sessions on giving to the justice fourteen clear days' notice of appeal. Our correspondent will note the order of procedure which must be followed.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

Appointments.

THE following examiners have been appointed for the ensuing academical year:—*In Medicine:* Drs. Bradbury, G. Newton Pitt, Frederick Taylor, and T. Dyke Acland. *In Surgery:* Messrs. L. A. Dunn, Raymond Johnson, F. F. Burghard, and W. McAdam Eccles. *In Midwifery:* Drs. H. R. Spencer and Amand Routh.

Degrees.

The following degrees have been conferred:

M.D.—W. Ledlie, Christ's.
M.B.—G. G. Alderson, Caius; A. E. A. Carver, Caius; L. W. Sharp, Caius.
B.C.—W. Ledlie, Christ's.

VICTORIA UNIVERSITY OF MANCHESTER.

AT a meeting of the Court of the Manchester University held last week, a loyal address to King George on his accession was adopted, and Sir Wm. Mather unveiled a marble bust of King Edward which had been executed by Mr. Bruce Joy and presented by an anonymous donor. The following honorary degrees were conferred: *Litt. D.:* Mr. W. W. Fowler, Fellow of Lincoln College, Oxford, and Canon Hicks, Bishop-elect of Lincoln; *D.Sc.:* Mr. W. N. Shaw, Director of the Meteorological Office, Dr. Hugo Müller, and Professor T. W. Richards, Professor of Chemistry in the Harvard University; *Mus. D.:* M. Felix A. Guilmant of Paris; *M.A.:* Miss Mary Dendy and Miss A. E. F. Horniman. Authority was also given to confer the degree of M.Sc.Tech. on the following members of the teaching staff: Mr. H. Brotherton, Assistant Lecturer in Mathematics; Mr. J. Grant, Assistant Lecturer in Chemistry; Mr. E. L. Rhead, Assistant Lecturer in Metallurgy; Mr. G. H. Winstanley, Lecturer in Mining.

In presenting the names of Mr. Dendy and Miss Horniman for the honorary degrees of M.A., Mr. E. J. Broadfield alluded to the good work of Miss Dendy as a member of the Manchester Education Committee in securing schools for defective children. Miss Horniman had come to Manchester to undertake work in improving the theatre which had never been attempted in any other city, and she was presenting a series of plays which the public had no opportunity of seeing elsewhere.

Annual Statement.

Vice-Chancellor Hopkinson, in his annual statement, said the university still continued to increase in numbers gradually, and there had been a substantial addition to the number of students during the year, the number now being 1,653, against 1,587 last year. The increase had not been confined to any one department, but was partly due to the increase in the number attending the Manchester School of Technology. The university was certainly a valuable help to the School of Technology, as students attending the school could now proceed to university degrees in the Faculty of Technology. There was also a slight increase in the medical school and the science and art departments. On the advice of the Senate, the council had decided to institute a professorship in Economic History; this was a new departure, and would be a valuable addition to the departments of arts and commerce. The council had also under consideration the question of appointing a second professor of law. The laboratories in connexion with the engineering department which were opened last year were now in full work. The court had also arranged for degrees to be given in agriculture, as the department of agriculture was now working successfully with the co-operation of the Cheshire County Council. He hoped the

Board of Agriculture would see it way to make a grant, especially for the purpose of encouraging research.

Diploma in Psychological Medicine.

The court decided to institute a diploma in psychological medicine. Professor Lorrain Smith, who brought up the motion, explained that the Medico-Psychological Association, which is composed largely of members of the medical staffs of asylums, had suggested that arrangements should be made for post-graduate teaching and for granting a diploma in this subject. The society pointed out that the graduates who left the medical school with the ordinary qualifications to take up resident posts in asylums had usually had very slight training in psychological medicine.

Dental Diploma.

The ordinances for the Dental Diploma were amended by the omission of elementary mechanics from the first course and examination, and the ordinance for the final examination now reads "Dental Surgery with Materia Medica and Therapeutics in their application to dental surgery and dental prosthetics."

Intermediate B.Sc. Examination.

In the Intermediate Examination for the degree of B.Sc., the students' choice of subjects is widened by the introduction of geology, and in the final examination for the same degree anatomy is added to the list of subjects for which a candidate may offer himself.

Certificates in Factory and School Hygiene.

It was also decided to institute certificates of proficiency in factory hygiene and school hygiene. The Vice-Chancellor referred to the growing importance of this subject in connexion with the inspection of schools and the increasing attention that is being given to the industrial diseases. He explained that candidates would not be eligible for the certificates unless they had the full medical qualifications and had also qualified for the diploma in public health.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE COMING COUNCIL ELECTIONS.

THE Council is at present constituted as follows:—

President.

Mr. H. T. Butlin; C, (1) 1895, (2) 1903.

Vice-Presidents.

Mr. Pearce Gould; (1) 1900, (2) 1908.
Mr. R. C. Lucas; C, (1) 1901, (2) 1909.

Other Members of Council.

Sir Henry Morris, Bart.; C, (1) 1893 (substitute), (2) 1898, (3), 1906.
Mr. Edmund Owen; C, (1) 1897, (2) 1905.
Mr. R. J. Godlee; C, (1) 1897, (2) 1905.
Sir W. Watson Cheyne, Bart.; C, (1) 1897 (substitute), (2) 1901, (3) 1909.
Mr. F. Richardson Cross; (1) 1898, (2) 1906.
Mr. J. H. Morgan, C.V.O.; C, 1902.
Mr. C. W. Mansell Moullin; C, (1) 1902 (substitute), (2) 1907.
Mr. Clinton Dent; C, 1903.
Mr. G. H. Makins, C.B.; C, 1903.
Mr. F. S. Eve; C, (1) 1904 (substitute), (2) 1907, (substitute for Sir J. Tweedy, till 1912).
Mr. A. Bowlby, C.M.G.; C, 1904.
Mr. H. G. Barling; C, 1904.
Mr. C. H. Golding-Bird; C, 1905.
Mr. G. A. Wright; C, 1906.
Mr. W. Bruce-Clarke; C, 1907.
Mr. Charters J. Symonds; C, 1907.
Mr. W. F. Haslam; C, 1908.
Mr. C. B. Lockwood; C, 1908 (substitute for Mr. Howard Marsh till 1910).
Mr. W. Arbuthnot Lane; C, 1908.
Mr. W. H. Cripps; C, (1) 1905 (substitute for Sir Alfred Cooper till 1908), (2) 1909.
(Mr. H. H. Clutton; C, 1902, deceased since last election.)

The following list shows the proportional representation of metropolitan medical schools and the provinces:

St. Bartholomew's	...	...	5
Charing Cross	...	...	1
Guy's ...	...	...	4
King's College	...	...	1
London ...	...	...	2
Middlesex ...	...	...	2
St. George's ...	...	...	1
St. Mary's ...	...	...	1
St. Thomas's ...	...	...	2*
University College	...	...	1
Total number attached to London schools ...	...	...	20*
Provincial members (Birmingham 2, Bristol 1, Manchester 1)	...		4
Total ...	...		24

Mr. Morgan and Mr. Lockwood retire in rotation, and two vacancies are left owing to the death of Mr. Clutton and the resignation of Mr. G. A. Wright.

*1, Mr. Clutton deceased.

UNIVERSITY OF SHEFFIELD.

Appointment.

MR. ROBERT DONALDSON, M.A., M.B., Ch.B., F.R.C.S.Edin., has been appointed to the post of Junior Demonstrator in Pathology, in succession to Dr. A. Bennee, deceased.

Instruction in Diseases of Children.

The Council has accepted with thanks an offer from the staff of the Children's Hospital to afford teaching facilities at the hospital to medical students of the university.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

ANNUAL MEETING.

THE annual meeting of the Fellows was held on Saturday, June 4th, the President, Mr. J. Lentaigne, in the chair.

The report stated that during the year, after the usual examinations, 27 candidates were admitted to the Fellowship; 73 candidates received the Conjoint Diplomas in Medicine, Surgery, and Midwifery of the Royal Colleges of Physicians and Surgeons; 37 candidates received the Conjoint Diploma in Public Health of the Royal Colleges of Physicians and Surgeons; 10 candidates received the Licence in Dental Surgery. Eighty-one candidates having passed the Conjoint Preliminary Entrance Examination with the Royal College of Physicians received certificates. The obituary list showed that 12 Fellows and 51 Licentiates died during the year. There are at present living 12 Honorary Fellows, 486 Fellows, 2,919 Licentiates, 6 Honorary Diplomates in Public Health, 334 Diplomates in Public Health, and 548 Licentiates in Dental Surgery.

ELECTION OF OFFICERS.

At a meeting of the Fellows, held on Monday, June 6th, the following office-bearers were elected for the ensuing year:—*President:* Mr. Robert H. Woods. *Vice-President:* Mr. Richard D. Purefoy. *Honorary Secretary:* Sir Charles A. Cameron, C.B. *Council:* Sir Henry R. Swanzy, Mr. William Stoker, Sir Charles Alexander Cameron, C.B., Mr. John B. Story, Sir Charles B. Ball, Sir Thomas Myles, Mr. John Lentaigne, Sir Arthur Chance, Sir Lambert H. Ormsby, Mr. Henry G. Sherlock, Mr. R. Bolton M'Causland, Mr. F. Conway Dwyer, Mr. R. Lane-Joynt, Mr. William Taylor, Mr. Edward H. Taylor, Mr. R. Charles B. Maunsell, Mr. William Ireland Wheeler, Mr. D. Edgar Flinn, and Mr. Thomas E. Gordon.

CONJOINT BOARD IN IRELAND.

THE following candidates have been approved at the examinations indicated:

D.P.H. (*Both Parts*).—W. B. Bannerman, Elizabeth H. Brook, Evelyn E. Dickinson, R. T. Edwards, C. C. FitzGerald, W. J. D. Inness, H. P. Lobb, J. K. Patrick, H. J. Raverty, W. de W. Wishart.

Obituary.

WILLIAM ROSE, M.B., F.R.C.S.,

EMERITUS PROFESSOR OF SURGERY, KING'S COLLEGE, LONDON; CONSULTING SURGEON, KING'S COLLEGE HOSPITAL.

WE are indebted to Sir John Cockburn, K.C.M.G., M.D., for the following account of the career of Mr. William Rose, whose death on May 29th was briefly announced last week:

William Rose's career affords a striking instance of the coincidence of an hereditary faculty with circumstances peculiarly favourable to its development. Descended from a race of successful surgeons, he was nursed in an atmosphere of the healing art. Long before he entered as a medical student at King's College he had learnt from his father, the leading surgeon in High Wycombe, something more than the rudiments of the profession, with the result that, having the end in view, he was able to appreciate more thoroughly than the younger and less experienced students the meaning and bearing of the teaching facilities which a great medical school affords. Endowed by Nature with an exquisite sense of touch and manual skill, he lost no opportunity of cultivating a wonderful dexterity in manipulation, which made him a most expert operator.

As a boy he was the fortunate possessor of a fine turning lathe and well-equipped workshop. Here he spent most of his leisure, and served his apprenticeship in handicraft. The hand that for the first time touched the instruments of surgery was already ripe with experience in handling all manner of tools. William Rose was not one who required to practise with the saw on the human femur. He was possessed of prodigious strength. It was

one of the sights of student days to see him with one hand grasp a heavy chair by the top rail, extend it at arm's length, and by sheer power of wrist raise it to a horizontal position. But this strength was tempered and regulated with a wonderful tactile sensibility. His touch conveyed a sense of restrained power, which commanded confidence and rallied the recuperative power of a patient. There was a veritable virtue in the laying on of his hands. His skill in manipulation and readiness to come forward when anything was required to be done attracted, early in his career as a student, the notice of Sir William Ferguson, whose dresser he became. He filled successively the positions at King's College Hospital of House-Surgeon, Surgical Registrar, Assistant Surgeon, Surgeon, and Consulting Surgeon. At the college he was Professor of Surgery, and on retirement from active work at the hospital he was elected to the Council of the College and appointed Emeritus Professor of Surgery, which positions he held until his death. The desire of his father's heart was that he should succeed to the hereditary practice at High Wycombe, but his uncle, Sir Philip Rose, having formed a high opinion of his talents, encouraged and assisted him to start as a consulting surgeon in London. Accordingly he took rooms in Old Cavendish Street. He became Sir William Ferguson's assistant, and indeed colleague, in all the latter's great surgical undertakings. Keen in diagnosis and unsurpassed at the operating table, William Rose was a fine type of the all-round surgeon. He was essentially a man of business, with a good sense of proportion. He never allowed his professional views to obscure his judgement in general affairs. He was endowed in large measure with that rarest of gifts, common sense; and this, with keen observation and divination of character, served him in good stead in positions where business capacity as well as medical knowledge are required, such as his appointments as Surgeon to the Great Eastern and London, Brighton, and South Coast Railway Companies. He was instrumental in obtaining settlements favourable to the companies in many claims for compensation after accidents. I remember one striking instance. He was asked to report on a case of alleged spinal concussion, as a consequence of which it was represented that the patient was unable to walk. Calling at the house, he was kept waiting an unusual time before being asked to see the patient, who was supposed to bedridden. On entering the room the man was sure enough in bed, but Rose noticed a pair of boots under it. Putting his hand into one of them, he found it was warm! So that case was easily disposed of.

William Rose was a lover of animals. It was the freemasonry of pigeon keeping which brought us together on the steps of the portal of King's College on the opening day of our first session in 1867. This mutual taste founded a friendship which stood the test of twenty-three years separation during my life in Australia. For many years we had rooms together, and well do I remember the assiduity with which he seized every opportunity of developing his innate dexterity. In the fruit season we used to practise cutting a uniform slice off cherry stalks; he called it paring the edges of the soft palate. We used, moreover, to work at every game which required manual skill, and had serious competitions in manipulating various mechanical toys. We speculated on diagnosing by their shape the contents of parcels seen in the street or at railway stations, and were never content with any appearance without demanding the why and wherefore.

About that time an eminent surgeon's reputation was seriously injured by the wounding of a main artery during an operation. This taught us the lesson that any mistake might be fatal, and escape from the consequences of an error was a mere matter of good luck. Consequently we regarded even trivial slips as matters of magnitude, and it was a rule that whoever committed a blunder, however slight, should be regarded as dead and have no voice in any decision for the rest of the day. Rose was impatient of any incapacity or shortcoming, and was sometimes unduly severe on those occasional errors of diagnosis from which in cases of exceptional difficulty even the best of men are not exempt.

He had a rich fund of humour, and as a raconteur had few equals. He had a talent for music, and especially for rhythm. It was a treat to hear him play the drum. Although some might have greater powers of executive, no one played with such fine modulation; he could make the parchment speak. He was a keen sportsman and excellent shot, of which the antlered heads of many royal stags were trophies. His strength and delicate touch made him a fine whip. A coach team or tandem were as a plastic mass in his hands. He could do what he liked with them. Although he prepared himself for his profession with infinite care, he could never be said to be a hard reader either as a student or afterwards. Neither was he a copious writer, although, jointly with Mr. Carless, he was the author of one of the best books of the day on surgery. The secret of his success was that, having an aptitude for his work, he loved it, and throughout life followed the natural bent of his disposition. At the same time he insisted on his week-ends and a long annual holiday. In no one, until his last illness, was the zest of life more keen.

His country house at Penn near High Wycombe was a model of solid comfort, and replete with every form of mechanical and electrical convenience and contrivance. He was possessed of unbounded faith in his own powers, which he in no way exaggerated. He knew just what he could do, and did it. His courage, mental and physical, was of a high order. He was a cheery optimist and never looked on the dark side of things. He was open-handed and kind, especially to the poor, to whom he always gave, gratuitously, the benefit of his vast skill and experience. Small wonder that the people of Penn loved him and grieve for him. In 1880 he married Marian, youngest daughter of the late Robert Clark, solicitor.

The last few years of his life were the reverse of a singularly prosperous and useful career, and were spent in struggling with a fatal and painful disease which he bore with unflinching fortitude.

SIR FRANCIS SEYMOUR HADEN, F.R.C.S.Eng.

SIR FRANCIS SEYMOUR HADEN died at his residence, Woodcote Park in Hampshire, on June 1st, in the 92nd year of his age. It is so many years since he gave up practice that his name has long since disappeared from medical reference books, and many of the younger generation are unaware that he was at one time almost as conspicuous a figure in the world of medicine as in that of art. He was the son of an Edinburgh medical graduate practising in Sloane Street, then a new neighbourhood not far from what were known as the Chelsea Marshes. His medical education he received partly at University College, London, partly in France at the Sorbonne and the University of Grenoble. He took the diploma of M.R.C.S. in 1842, and that of F.R.C.S. in 1857. Eventually he established himself in Hertford Street, Mayfair, devoting himself to general practice with a good deal of surgical and obstetrical work thrown in. A great many of his patients were well-known personages, one of them being the novelist, Thackeray, whom he attended in his last illness. He made at this time a few contributions to the medical journals on various topics, including cholera, and was one of the vice-presidents of the Obstetrical Society, in company with Sir Charles Locock and Sir William Fergusson. His interest in the subjects dealt with by this society was well evidenced by the ardent support he lent to the few persons who then favoured the radical treatment of ovarian tumours. He was also prominent during the early part of his career as a medical member of committees and juries at international exhibitions, presumably as an outcome of the circumstance that he was honorary surgeon to the Government Department of Science and Art. It was perhaps, however, as an early reformer of burial practices that he was best known in medical connexions. Though a strong opponent of burials as then and even now conducted, he was equally opposed to cremation, regarding his own method as being the only defensible practice. This was to inter bodies in papier maché coffins placed just below the surface of the ground. He took so much interest in this subject that he continued experiments with animals on his own estate in Hampshire until quite a recent period. But this was by no means the only controversy in which he was a leader. Vigorous in mind and body, he was ever ready to uphold a cause which interested him, and what between his powers as a fighter and

his admittedly high talent as an artist, he came to hold a unique position in art circles, both at home and abroad. It was as an etcher that he was celebrated, his work being not that of the copyist but of a painter-etcher on the lines of Rembrandt and other great masters. He published a good many dissertations on the subject of etching, and fought its claims with the Royal Academy on several occasions. By way of further supporting it he founded the Royal Society of Painter Etchers, of which he remained President until his death, meantime obtaining for it Royal recognition. His own work with the needle was so skilled that on two occasions he was awarded the Grand Prix by the Académie des Beaux Arts of France. Sir Francis Seymour Haden was a brother-in-law of the artist Whistler, whose half-sister he married in 1847. This circumstance may have contributed to maintain his interest in art, but did not initiate it, as from a much earlier period in his life he was known for his skill with pencil and paper, and he had divided his time as a student in Paris between the medical school and the studios. Lady Haden died some two years ago, but he is survived by a son and namesake, Mr. Francis Seymour Haden, C.M.G., formerly Governor of Zululand.

RUSSELL STEELE, M.D.Durham, M.R.C.S. and L.R.C.P.Edin.,

CONSULTING SURGEON, WEST HERTS COUNTY HOSPITAL.

The news of the death of Dr. Russell Steele, which occurred at Hemel Hempstead on May 18th, will be received with regret and sorrow by his many old friends and patients. Born in the year 1847 at Reigate, where his father, Dr. John Sisson Steele, practised for many years, he received his education at Epsom College, and from there went in 1865 to study medicine at University College, London, where he was a contemporary of Sir Thomas Barlow. He obtained the diplomas of L.R.C.P. in 1871, M.R.C.S. in 1872, and took the degree of M.D.Durh. in 1887. After leaving University College he was for a few years an assistant to his father, and in 1877 settled at Hemel Hempstead, as assistant to Dr. Holland Ambler; at Dr. Ambler's death in 1879 as partner to his son, Dr. Horace Ambler.

In his work at the West Herts County Hospital, where his services were much appreciated by the staff and committee as well as by his patients, Steele took the most unremitting interest and showed himself to be a skilful and successful surgeon of no mean order. Quiet, unassuming and self-sacrificing, he was a fine example of the general practitioner of this country and did much good in upholding the honour of his profession. Nothing gave him greater pleasure than to meet his school and college friends and discuss old times. For Epsom College he retained to the last days of his life a great affection, and in its welfare he took a keen interest. The funeral service was held at the parish church on May 21st, the building being filled to overflowing by those who loved and respected him, by many of whom he will be sadly missed. He leaves behind him a widow, three sons, and two daughters to mourn his loss.

Of his career at college and afterwards, Sir Thomas Barlow writes as follows: "Russell Steele was well known to me because we were fellow students. He was a very engaging man, popular and much liked by all his fellows. He went to the country directly after he had qualified, and I often saw cases with him at Hemel Hempstead. He was always the same—devoted to the interests of his patients and disregardful of his own. He was a careful and accurate and thoughtful practitioner, and seemed to me to keep thoroughly abreast with the progress of modern knowledge. No wonder he was beloved by his patients, for he was always tender-hearted and humane, and he was a delightful companion, for he had a cultured taste and keen appreciation of beautiful things. Nobody could have been more patient, gentle and unselfish all through his long weary illness."

One of Dr. Steele's former assistants has sent us the following appreciation:

He was all that was noblest and best, both as a man and as a physician; certainly one of the most transparent men I ever met. He lived entirely for others, and neglected himself at the cost of a shortened life. No one appealed to him for help in vain, and he always left one the better for having come in contact with him. His store of sympathy and good spirits was inexhaustible. The more he lavished them on others the more he seemed to have. In his home he was an ideal father. He was an all-round man, and as a general practitioner he had few equals. The chief attributes to his remarkably successful career were his unfailing sympathy, his gentleness, cheerfulness, refinement, and ability. Had he not chosen to follow the profession of medicine, there is little doubt but that he would have made a name for himself in the world of art. Whether it was a sketch or a photograph that he happened to be engaged with the result was invariably a delight to the eye. He was an artist to his finger-tips, and more than once have I seen him out of a few chance blots on a blotting-pad dash off, with a few strokes of his pen, a very pretty landscape. To a man of his fine fibre, the wearing life of a busy country practitioner must have been very trying, but he was never heard to complain; the word "self" was not in his vocabulary.

Medico-Legal.

AN ACTION FOR NEGLIGENCE.

The case of Crickmay *v.* Biden, which was heard last week at Bury St. Edmunds, involved a charge of negligence against Dr. Charles Walter Biden, of Laxfield, near Halesworth.

Mr. Brandon appeared for the plaintiff; Mr. Hume Williams, K.C., and Mr. Wild, instructed by the Medical Defence Union, appeared for the defendant.

It appears from the report published in the *Times* that the plaintiff, a solicitor's clerk, suffered from an attack of pneumonia while at his home at Laxfield for a holiday. After recovering from the pneumonia he had a disorder of the knee, which was first diagnosed as acute rheumatism. The condition of the knee was eventually attended by suppuration, and on October 31st another doctor who was called in advised operation. Before this was performed the swelling burst. Counsel for the plaintiff contended that the patient had not received proper treatment, and that had he done so the leg, when becoming stiff, would not have remained at an angle. The patient was subsequently admitted to St. Thomas's Hospital, where it was found that the knee was dislocated, and that the plaintiff would be a permanent cripple. The plaintiff, in his evidence, said that at St. Thomas's Hospital he was told that his condition would become worse through curvature of the spine unless he had an operation. Dr. C. D. Green, of Romford and London, said that the knee was stiff, and the bone of the leg displaced backward and outward; he expressed the opinion that proper treatment for suppuration was not followed.

Mr. Hume Williams said that no question of want of care could arise, because no man could have bestowed more anxious care than Dr. Biden, who attended the plaintiff ninety-six times almost consecutively. Counsel traced the condition of the plaintiff from the time when he called in Dr. Biden, pointing out the serious state of his health and the danger that would probably have arisen from an operation. The difficulty was not the keeping of the plaintiff from having a stiff leg, but from dying. He contended that the defendant had exercised care and reasonable skill.

Dr. Biden said that two days after it was decided to make an incision into the knee it burst, and an operation was therefore considered to be unnecessary. He had no reason to suspect the existence of pus until October 28th.

Dr. Ball of Stradbroke, Dr. Edgar Barnes of Eye, and Dr. Kilner of Bury St. Edmunds all agreed that Dr. Biden took all reasonable means, considering the obscurity of the case.

The jury returned a verdict for the defendant, for whom judgement was entered with costs.

DEATHS FROM MISADVENTURE.

The case of strychnine poisoning through the incorrect compounding of a mixture, in which a coroner's jury returned a verdict of death from misadventure, and of which an account will be found at page 115 of our issue for January 8th, 1910, had a sequence in the London Sheriff's Court on June 1st. Negligence was admitted, and the only question for the court was the amount which should be paid to the husband and the children of the deceased woman by way of damages. The plaintiff's counsel endeavoured to make out that the defendant was a man of large means, but the jury, after hearing the medical man's statement as to his position, assessed the damages at £214 11s. 6d.—namely, £50 for the husband, £50 each for three children under age, and £14 11s. 6d. expenses. The deceased woman was the wife of the stage manager of a local music-hall.

ATTENDANCE AT NECROPSIES ORDERED BY CORONERS.

At an inquest held recently by the deputy coroner for Nottingham with regard to the death of a child which was attributed to exhaustion following diarrhœa, it appeared that Dr. C. M. Simpson, who had attended the child during life, had not been

invited to attend the *post-mortem* examination. Mr. Jackson, of Messrs. O'Rorke and Jackson, who watched the inquiry on behalf of the Midland Medical Union, said that the doctor who had attended the child might very properly have been asked to make the *post-mortem* examination, or to have been present. The Union and the medical profession felt that in cases where a *post-mortem* examination was thought proper, the doctor should be invited. The coroner said that he had thought it better in this case to have an independent examination, but he had not intended to prevent Dr. Simpson from being present. The fact that Dr. Simpson was not informed of the date of the *post-mortem* examination was due to an oversight.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee, except when so stated.

SUPERSESSION.

MAN OF PEACE writes: B. has been regularly attended by A. for many years, but in an emergency C. is sent for as being nearer, and sticks to the case; B., being ignorant of the custom of the profession, and not knowing how to get rid of C., does not demur. C. then takes a holiday, and B. refuses to have his locumtenent, and sends for A., to whom he explains the whole matter. Ought A. to attend on behalf of C.? C. knew quite well that A. had been the regular medical attendant for many years.

*** In the circumstances stated A. would, we think, be at liberty to resume attendance on his patient if it is the patient's wish that he should do so.

Medical News.

SIR FRANCIS HENRY LAKING, Bart., G.C.V.O., M.D., has been appointed a Knight Commander of the Order of the Bath, on the occasion of the King's birthday (June 3rd). It is announced that other honours appropriate to the occasion will be issued at the time of the official celebration of the birthday on June 24th.

DR. H. R. MILL has presented to a board of trustees the unique collection of rainfall records and the leasehold of the historic rainfall house, 62, Camden Square. The institution, which deals with the records of nearly five thousand voluntary observers in the British Isles, has always been self-supporting, but an endowment fund is now being formed.

THE Harben Lectures of the Royal Institute of Public Health are being given this year by Sir W. B. Leishman, M.B., F.R.S., Professor of Pathology in the Royal Army Medical College, London. The subject of the lectures is antityphoid inoculation. The first was given on Wednesday last, and lectures will be given on June 15th and 22nd, at 6 p.m. on each day.

THE Section of Balneology and Climatology of the Royal Society of Medicine held a very successful provincial meeting at Buxton on May 28th. The fellows were received by the President of the Buxton Medical Society and other members of the profession practising in the locality, and given an opportunity of examining the bathing establishment and the Devonshire Hospital. At the latter the various classes of cases were arranged in groups. The fellows' dinner, which took place the same evening at the Palace Hotel, was followed by a smoking concert.

THE report of the Council of the Society for the State Registration of Nurses, adopted at the annual meeting on June 2nd, stated that on all sides there were signs that the long struggle for the organization of the nursing profession was drawing to a close. The true significance of the opposition was daily becoming better understood, as also was the fact that in desiring to obtain the organization of their profession under State authority trained nurses were working for no selfish ends, but were inspired by a sense of public duty to the community. The public was beginning to realize that it had no guarantee that women who professed to be thoroughly trained nurses were what they assumed to be, and legislation giving this guarantee could not be long delayed. Before the meeting concluded a resolution was passed stating that the Society desired to direct the attention of the public and of Parliament to the injury done to well trained and reputable nurses and nursing homes by the exploitation of their professional uniform and by bogus nursing and massage homes. A second resolution called upon Government to offer facilities for the passing of a registration bill and on local authorities to institute inspection of nursing homes.

Letters, Notes, and Answers.

COMMUNICATIONS respecting Editorial matters should be addressed to the Editor, 429, Strand, London, W.C.; those concerning business matters, advertisements, non-delivery of the JOURNAL, etc., should be addressed to the Office, 429, Strand, London, W.C.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

COUNTRYMAN asks how rubber gloves may be sterilized thoroughly without boiling, which tends to destroy them quickly.

HYPERIDROSIS.

WIDS asks for suggestions for the treatment of excessive sweating of the palms in a girl, aged 18. The gloves are constantly soaked. The sweating has no relationship to the menstrual periods. All the textbooks' applications have been tried.

BISMUTH SUBNITRATE PASTE.

TRISNIT asks: What are the symptoms of bismuth poisoning where the subnitrate paste is used to inject sinuses and abscess cavities, and whether there is any advantage in using the carbonate instead of the subnitrate? Nitrite poisoning is said to occur when the subnitrate is used. What would be the symptoms? In a case where the last-named salt was used there was developed a black line on the gums, upper and lower; the patient died some weeks afterwards from exhaustion following on long suppuration. Two ounces of the paste were used.

ANSWERS.

OLD CLOTHES.—Left-off clothing for use by members of the profession or their dependents are received by the Ladies' Guild of the British Medical Benevolent Fund. The parcels should be addressed to Miss Ruth West, 11 Chandos Street, Cavendish Square, London, W.

HERPES ZOSTER FOLLOWING INJURY.

DR. RICHARD HAMILTON (Santley, Birmingham) writes: The following case may be of interest to Dr. Dobbie: W. consulted me on May 22nd last. He stated that on May 16th he fell from his bicycle on to his shoulder; he suffered very little pain and there was no bruising. On May 18th pain became intense, and on May 21st herpes appeared. On the next day herpes was well developed on the skin over the lower portion of the deltoid, the outer side of the upper arm and the upper half of the lower arm. Pain was very severe and his temperature was 101°. Recovery was rapid; he returned to work on May 30th.

BOOKS FOR D.P.H. CAMBRIDGE.

W. P. H.—We are informed that the textbooks usually read by candidates for the D.P.H.Cambridge are: Muir and Ritchie's *Manual of Bacteriology*, fourth edition (Edinburgh and London: Young J. Pentland, 1907, 10s. 6d.); Notter and Firth's *Hygiene*, sixth edition (London: Longmans, Green, and Co., 1905, 4s. 6d.); Whitelegge and Newman's *Hygiene and Public Health*, eleventh edition (London: Cassell and Co., 1908, 7s. 6d.); Parkes and Kenwood's *Hygiene and Public Health*, third edition (London: H. K. Lewis, 1907, 10s. 6d.); Robertson and Porter's *Sanitary Law and Practice* (London: Sanitary Publishing Co., 1905, 10s. 6d.); Newsholme's *Elements of Vital Statistics*, third edition (London: Swan Sonnenschein and Co., 1899, 7s. 6d.); Knight's *Annotated Model Bye Laws of the Local Government Board*, seventh edition (London: John Knight and Co., 1905, 16s.). A copy of the papers set for any one examination, together with the regulations for the next examination, can be had for 1s. from Messrs. Deighton and Bell, booksellers, Cambridge, or Cambridge University Press Warehouse, Fetter Lane, London.

LETTERS, NOTES, ETC.

CAVEAT EMPTOR.

COMMUNICATIONS received recently from medical correspondents seems to make it desirable to advise readers to act with due deliberation in determining whether they will accept the terms of a proposal which may be made to them by a canvasser who may lay before them an agreement to subscribe to an album of portraits of medical men, issued or about to be issued by the firm of Adolf Eckstein of Berlin Charlottenburg

THE INFLUENCE OF AIR ON PHTHISIS.

DR. F. P. ATKINSON (Bexhill-on-Sea), writes: I think it may safely be said that improved vitality is to a great extent the base on which the successful treatment of phthisis rests, and therefore a pure, mountainous, dry, sunny air is required with residence on a dry, well-drained soil. Residence in sunless air, and damp, low-lying districts has a tendency to lower vitality, and is therefore prejudicial, although the detrimental effects are by no means so great as where there is overcrowding and the atmosphere is germ-laden and germ-producing.

"SOME ROYAL DEATH-BEDS."

IN Dr. S. D. Clippingdale's note appended to the article "Some Royal Death-Beds," which appeared in the JOURNAL of June 4th, there was a misprint which we wish to correct. The place to which sick children from London were sent in the reign of Henry VIII was not Hampstead, but Flamstead, a place in Hertfordshire, a few miles north of St. Albans.

FAMILY LONGEVITY.

DR. GEORGE MAW (Shortlands, Kent) writes: I think the following instance remarkable. Can any of your readers give a higher record? Out of a family of twelve, two died young (22 and 17, one drowned at sea); the ages of the other ten were 75, 87, 87, 89, 91, 64, 85, 80, 71, 77; total, 806, or an average of close on 80 years and 8 months. Two are still living. I know of another instance in which three sisters were considerably over 90 and alive at the same time; but I believe there were only six in that family, and the others died (comparatively) young.

THE DIPLOMA IN OPHTHALMOLOGY AT OXFORD.

DR. J. C. MCWALTER (Dublin) writes: Surely the British Medical Association should protest against the proposal to institute a diploma in ophthalmology at Oxford? After such an important precedent every university will feel bound to confer a diploma in some branch of medical service—in otology, rhinology, proctology, urology or the like—and a multiplication of certificates will result which will reduce the universities to the status of competitive diploma shops. I submit that the British Medical Association, being officially in favour of a one-portal system, is bound to discountenance a multiplicity of diplomas.

VISCEROPTOSIS—VISCEROSTAXIS.

W. A. H. (Hove) writes: I see with regret in the pages of your well-edited JOURNAL of the 28th May a revival of the transatlantic hybrid "visceroptosis." This term must be offensive to all lovers of good English for two reasons. It is compounded of words taken from two languages, namely, viscera, Latin, and ptosis, Greek—and, moreover, the hybrid is a bad hybrid even so. By no recognized rule of grammar that I know can the crude-root "viscer" be followed in a derivative by "o." We find "visceratim" and "visceratio" in Latin. If we permit the coiner of a new word to pick his syllables from different sources, "visceraptosis" may be admissible. Again, "epistaxis" is Hippocratic; "viscerostaxis" may be "democratic" but it is certainly not a good English word.

A FATAL CASE OF GASTRIC HAEMORRHAGE.

F.R.C.S.EDIN. writes: About 4 o'clock one afternoon recently I was urgently called to see a woman, aged 40 years, who had commenced vomiting blood about a quarter of an hour before. She had a history of gastric trouble of four months' duration, but there had been no previous haemorrhage. She had not been under regular treatment. I found her walking about apparently not seriously ill, though she had vomited about 6 oz. of bright red blood. She was immediately put to bed, cold wet cloths were applied to the abdomen, and a quarter of a grain of morphine was injected. After about a quarter of an hour I went to get some drugs—adrenalin, etc. When I returned about half an hour later I found her very much worse; she had vomited about 10 oz. of blood, and passed about 6 oz. by the bowel. She was given another injection of morphine and mxv of adrenalin by the mouth, but the latter had little effect, as she vomited a few minutes later. It was impossible to remove her to hospital or to attempt operative treatment in the house. She vomited a few ounces more blood, rapidly got worse, and died at 6.30 p.m., apparently solely from loss of blood. No autopsy was performed, so that the actual site of the haemorrhage is unknown. I had previously only seen one case of fatal gastric haemorrhage—from a gastric erosion, and the diagnosis was only made at the autopsy, there having been no blood vomited or passed by the bowel. In the literature at my disposal I cannot find any statistics of the frequency of fatal gastric haemorrhage. It would be instructive if some of your readers would give their experiences of these "pathological accidents."

SPONTANEOUS VERSION AFTER RUPTURE OF MEMBRANES.

DR. JOHN MORRISON (Bannockburn) writes: I have read with considerable interest Dr. Crawford's "Notes on One Thousand Cases of Instrumental Labour" (BRITISH MEDICAL JOURNAL, May 28th, p. 1280), and especially that part of his paper in which he describes how, after rupturing the membranes, the rush of waters caused the child to perform a somersault *in utero*. I had a similar experience some years ago. My case was that of a multipara with a large, roomy pelvis. The midwife, who sent for me, said that the patient had been in labour a long time and that the pains were "doing her no good." I made out the presentation as a head, and that the delay was due to an excessive amount of liquor amnii. I ruptured the membranes and withdrew my hand. There was a gush of fluid, and, to my surprise, on making another examination, I found a "footling" presentation. I mentioned the case to several of my colleagues, but was chaffed so unmercifully about my "acrobatic fetus" that I made up my mind to say no more about it. Dr. Crawford's experience is my excuse for putting it on record. While on the subject of experiences, I may say that some time ago I attended a woman in her second confinement. Her nurse was her first child, who had reached the age of 22 years and who was at the time suckling her own firstborn.

CHILD EMIGRATION.

DR. B. DUNLOP (Brasted, Kent) writes: In his interesting reply (p. 1206) to my letter in the JOURNAL of April 23rd, Dr. George Johnston indicates that only "in cases of orphans and other children thrown entirely upon the hands of the Poor Law authorities" could anything like compulsory child emigration be recommended. He does not, however, deal with my contention that public assistance to "dependent children"—certainly public assistance beyond free education and free dispensary treatment—must, for the reasons I gave, bring us rapidly either to national disaster or to Socialism. In all cases where, in spite of due warning, children are sent to school insufficiently fed, clothed, or cared for, their emigration should be enforced; the alternatives being, so far as I can see, segregation for life or continuance of the home neglect. If Dr. Johnston be a Socialist I can understand him pursuing their policy of urging on the Individualists to ruinous charitable schemes, cooly pretending—or leaving the thoughtless to assume—that under a Socialistic régime chronic poverty would be checked without any infringement of the liberty of the subject. If, however, he be an Individualist, he must be holding a view I wish I could share with him, namely, that a thorough public maintenance of the children of the poor would make them self-dependent citizens who would voluntary emigrate the moment they became unemployed, and would be above accepting readily any available public assistance for their children in the next generation.

MOTOR DUST AND DIARRHOEA.

DR. J. AIKMAN (Guernsey) writes: Your note on the influence of the motor car on the increase of tetanus interested me as an explanation which I have attempted to give concerning the incidence of a winter diarrhoea. The disease was quite a marked feature during the winters of 1906–7 and 1908–9, but was commonly thought to be a form of influenza, as it was attended by marked fever and followed by prostration. The stools were like those of summer diarrhoea, and the onset was just as sudden. It did not specially attack children, and the mortality, when it did, was not as high as is usual during the summer. The rainfall of these two years was low, that of 1908 being the lowest since 1870, hence they favoured the raising of dust by motors. During the winter the growth of the dust-contained organisms is less active than in the summer, which might account for the diminished virulence or fatality of the disease. I also noted that during last summer (1909), which was dry, there was less infantile diarrhoea than usual. Adults, being out more after dark, are more exposed to the dust in the roads during the winter than children are. Perhaps it was for this reason that the disease was more marked in them. The converse—that children suffer more in the summer—raises the question whether toleration has any influence. It surely does result from frequent exposure to lesser doses of organic poisons which the system has been educated to control. I should be glad to hear if my experience has been exceptional, as an individual experience may be.

THE CAUSATION OF SEX.

T. W. B. writes, in reference to the communication from "J. A. W." in the JOURNAL of May 21st, page 1272: Bee cells of wax combe are constructed by the worker bees in three different sizes for each colony of bees, the largest for the queen; next in size come the drone cells for the male bees, and, most numerous, the smallest cells of the worker bee. There is but one queen retained in each colony, and, if she is strong and fertile after cohabiting with a drone, she will lay upwards of 3,000 eggs a day, one in each cell, indiscriminately in all available cells. These eggs, of course, do not differ in composition, and yet three different kinds of bees are produced from them. The queen is fed on special food (to make her strong and fit for her great task of laying some 5,000 eggs to make up a strong colony of bees) by the worker bees during her "grub stage," but I do not agree with the theory held by so many of my fellow beekeepers that the so-called bee-jelly feeding accounts for her sex. I am of opinion that according to the *size* and formation of the cells will the sex be, according to the moulds in which the ova are deposited; and so I take it to be in the female human body, that the moulds forming the corpora lutea are the moulds for fertile ova in the ovaries, and that these moulds may vary sufficiently from period to period as to vary the sex of the progeny of the same father and mother, and, in the case of twins, to produce, according to its each individual mould, both a male and a female from the same impregnation.

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